

SEPTEMBER 25, 1937

# Railway Age

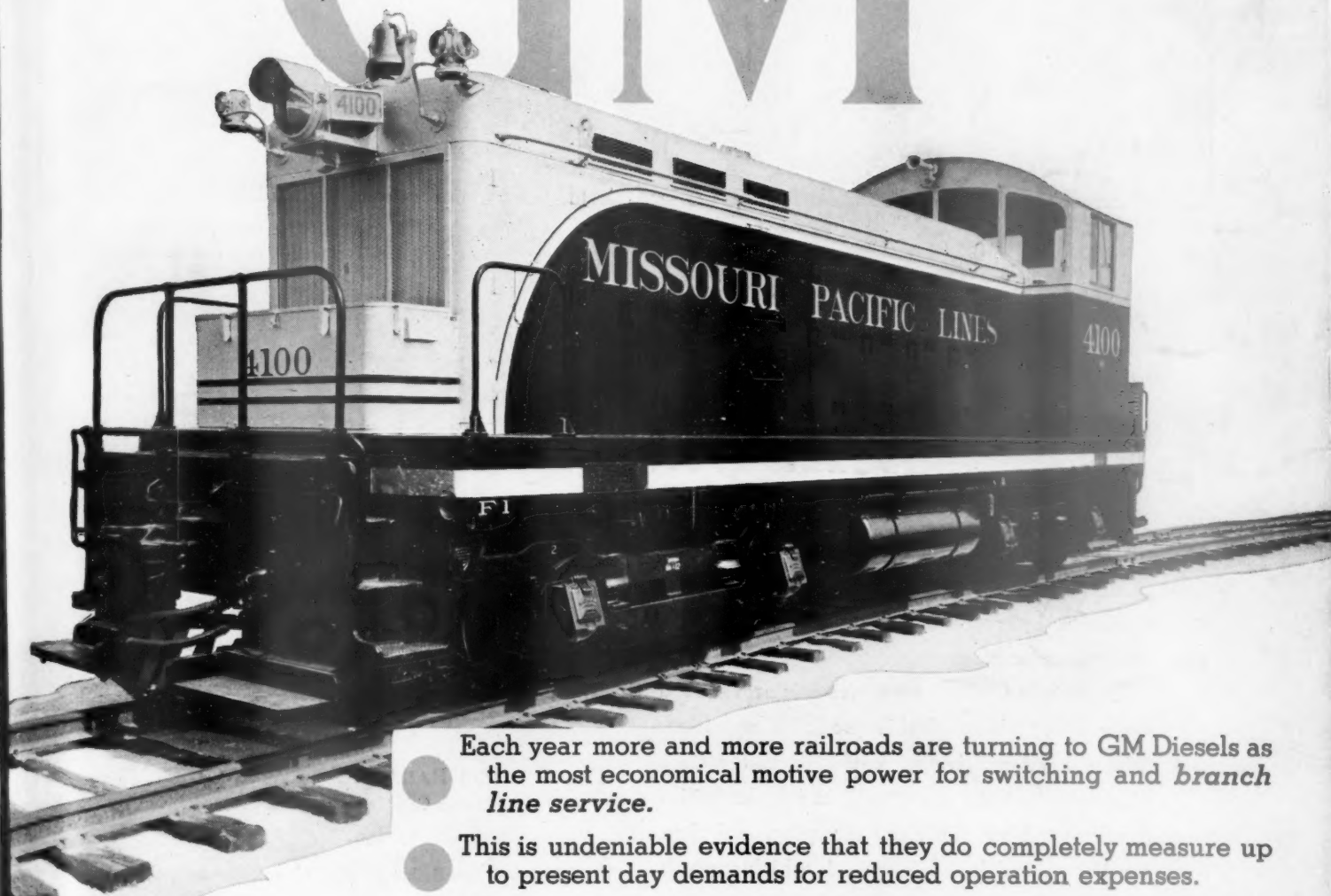
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# Railway Age

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Vol. 103

September 25, 1937

No. 13

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*The Railway Age is indexed by the Industrial Arts Index and also by the  
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# 'All's Clear!'



Only when the runway is clear will the field manager of a modern airport radio his "All's clear, bring her in" approval to an incoming airliner to land. Scientific instruments enable the pilot to steer the ship safely on its course, usually flying above fog and storm. " " " " " "

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1881

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# The Week at a Glance

**L. V. DIESELS:** The Lehigh Valley has ordered six Diesel-electric switching locomotives for service at its Buffalo terminal.

**16-CYLINDER LOCO:** The B. & O. has completed the design of a radical innovation in steam locomotives—with 16 cylinders to provide constant torque propulsion. An illustration with descriptive details will be found in the news section.

**ARE WE A "MOUTHPIECE"?:** George Harrison thanks his stars that railway managements are generous and not willing to "impoverish labor," which he says we favor. This ought to exonerate us from the accusation of being spokesman for managements, as the train union tycoons recently charged in Chicago. The reason we receive so many flattering upbraidings from the labor politicians is disclosed in the leading editorial herein—in brief, that the facts on the unconscionable nature of the union demands which we are disseminating are damaging their cause in the eyes of the public. Every squawk, a bull's eye—and have we been scoring them!

**FORWARDERS FAVORED:** Examiner Trezise, in his proposed report on forwarder traffic to the I.C.C., condemns as unlawful the leasing of terminal space to forwarders at "inadequate rentals," and he finds fault with numerous other favors which he enumerates, deploring the "servile attitude" of the railroads toward forwarder patrons. He urges that consolidators be deprived of their shipper status and regulated as express companies under Part I of the Interstate Commerce Act, and he does not believe the railroads get enough money out of this class of traffic.

**BIKE TRAIN HIGH:** The New Haven's bicycle and camera train, operated from New York last Sunday, had 625 passengers—a record for a train of this kind.

**NEW TIME TABLES:** With the end of daylight saving time in the North Atlantic Seaboard area on September 26 the Eastern roads are making many changes in passenger train schedules. The B. & O. is putting a new streamliner on its "Columbian" schedule between New York and Washington and is speeding up the "Capitol Limited" and the "Shenandoah." The New Haven is adding a Boston-Philadelphia train and is accelerating a number of its main line trains. The New York Central is extending the run of the Empire State Express to Cleveland, and both the N. Y. C. and Pennsylvania are making important adjustments in their New York-Chicago services.

**MAKING MORE JOBS?:** Ralph Budd in a recent address to Burlington employees said that each \$25,000 invested in the road last year gave one man a job and brought gross earnings of \$3,860—out of which \$1,750 was paid to the employee and \$1,555 went for taxes, new materials, rent and

depreciation, leaving only \$555 (or 2½ per cent) for the investors whose money made the job and tax and other payments possible. Will job-making investments continue at such low wages?

**ROADMASTERS:** The convention of the roadmasters, held last week in Chicago, had the largest attendance and volume of exhibits in several years; and the report of the proceedings, published herein, characterizes the meeting as the "most successful since the beginning of the depression."

**NO "CRUMMY" THIS:** The Lehigh Valley has 20 new cabooses, all-steel, with cushion underframes. The cars are wood-lined and have mineral wool insulation, mattresses of sponge rubber, cooking facilities and a refrigerator. An illustrated article herein describes them.

**MOTOR BUREAU CHIEF:** Assistant Director Blanning of the I.C.C. Motor Carrier Bureau has been named head of the Bureau succeeding John L. Rogers, appointed to the Commission. The new director had an extended career with the Pennsylvania Public Service Commission before joining the I.C.C. staff in 1935.

**DR. DUNCAN WARNS:** Railroads are today headed inexorably for government ownership, Dr. C. S. Duncan, economist for the A.A.R., told the Shippers Board at Pittsburgh this week. The driving force impelling them thither is inadequate earnings; and the only thing that can save them is for business opinion to awaken from its apathy.

**MERGE RIO GRANDE:** Urging that its interests may be jeopardized in the proposed reorganization of the D. & R. G. W. and the W. P., the Mo. P. has asked the I.C.C. to reconsider its petition to be allowed to intervene in the proceeding, and also to permit the Mo. P. to submit a reorganization plan which would merge the Rio Grande and the W. P. and preserve the Mo. P.'s interest in these roads.

**ALL-PURPOSE DIESEL:** The F. W. & D. C. has a new Diesel-electric locomotive, 1,000 hp., which it proposes to use in switching, transfer and mixed passenger and freight service. An illustrated article in this issue describes the new engine, which is being tried out on the "Q" before shipment to the F. W. & D. C.

**WHAT SHIPPERS WANT:** The Missouri Pacific traffic department has made a study of why freight has left the rails and has found that in many cases the causes can be easily remedied. One such remedy that has won back a lot of business has been the provision of a co-ordinated truck service by the railway—a rapidly expanding enterprise, as an article in the Motor Transport Section herein points out.

**EARNINGS UNNEEDED?:** Fairman Dick, in an illuminating discussion of railway financial problems published herein, declares that scaling down railway debt is no solution to railway difficulties, as many shippers, labor leaders and alleged statesmen seem to think. Either new capital must come into the industry or it will die—and jobs and service will die too. There is only one way to bring capital in and that is to give it reasonable security and pay it decent wages. It is about time for some big shot shippers who are supposed to be opponents of government ownership to wake up to the inescapable logic of Mr. Dick's analysis.

**B.R.T. ON BUSES:** The National Labor Relations Board has certified the Brotherhood of Railroad Trainmen as the exclusive bargaining agency for bus drivers of nine units of the Greyhound Bus Lines.

**ARE RAILROADS "ASSETS"?:** A lot of the self-appointed conservators of "natural resources" plump for waterway development, and even for highways, as against railroads—apparently ignoring that railroad properties represent wealth which, when not used, depletes the national income the same as if "natural" resources are neglected. But the National Resources Committee, the government's official guardian of the assets of the people, does not fall into this error. Instead, in its recent report on "urbanism," it condemns the wasteful duplication of transport facilities and wants all transport agencies regulated by one federal board, presumably so that development will be harmonious and not, as now, too frequently cannibalistic.

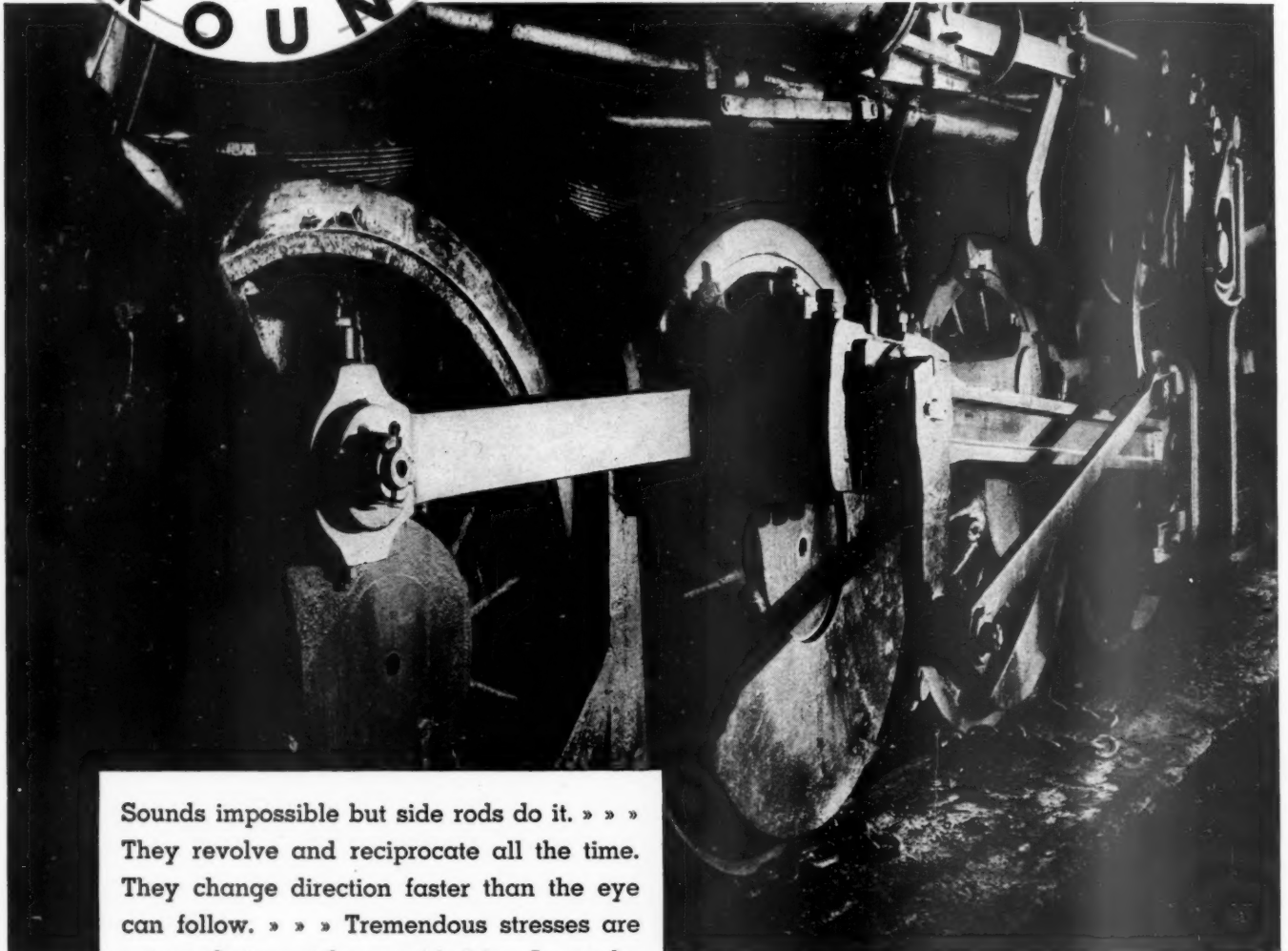
**STOKERS REQUIRED:** Automatic stokers on all passenger locomotives weighing over 170,000 lb. on drivers and freight engines of more than 185,000 lb. would be required if the I.C.C. adopts the proposed report of Examiner Homer King. The installation, to affect 3,500 engines now hand-fired, would, according to Mr. King, not only promote safety but would also save money for the railroads.

**TRUCKS IN CANADA:** How the Canadian National has enlisted truck operators to give, in connection with the railway, a co-ordinated service to shippers is described by W. E. Miller, supervisor of station service, C. N. R., in an article in the Motor Transport Section herein.

**COAL ROYALTIES:** A report of the anthracite commission of the state of Pennsylvania, the chairman of which is W. Jett Lauck, who some years ago served as economist for the railway labor organizations, has recommended that a graduated tax be levied on anthracite coal royalties, of which railroad affiliates are large beneficiaries—the purpose being to bring "free and independent competition" in anthracite production.



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## RAILWAY AGE

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# Railway Age and The Labor Leaders

That the *Railway Age* recently has been the object of numerous attacks by leaders of the railway labor unions is highly significant. It is notorious that A. F. Whitney, president of the Brotherhood of Railroad Trainmen and formerly chairman of the Railway Labor Executives Association, and George M. Harrison, president of the Brotherhood of Railway Clerks' and now chairman of the Railway Labor Executives Association, have been engaged for months in bitter rivalries and recriminations. They both, however, heatedly express dislike of the *Railway Age* and its editorial discussions of railway labor union policies.

### Harrison Exonerates Us From "Mouthpiece" Accusation

Mr. Whitney repeatedly has denounced the *Railway Age* in the conferences between the Carriers' Conference Committee and the five transportation brotherhoods. Mr. Harrison has published in the *Railway Clerk* an open letter severely criticising an editorial in this paper regarding the recent wage settlement with the fourteen "non-operating" unions of which he was the principal spokesman. But even as respects the *Railway Age* there is one matter concerning which Mr. Whitney and Mr. Harrison cannot agree. This is as to whether the *Railway Age* is or is not a spokesman of railroad managements.

The five brotherhoods recently issued a statement denouncing both the Carriers' Conference Committee and the *Railway Age* for emphasizing the high hourly earnings of enginemen and trainmen and the increases in them that have occurred since 1929 because of increases in the speed of trains. The plain implication of this statement was that the *Railway Age* is a spokesman of railway managements. On the other hand, in his open letter, Mr. Harrison says:

"It is indeed unfortunate that your ideas of 'sound economic policies' do not coincide with those of the President of the United States, the Congress of the United States, railway management, leading economists and even railroad security owners. The American na-

tion has accepted a new economic and social philosophy. Railway management generally has joined hands with the government, its employees and the public in giving this new philosophy a fair trial. \* \* \* It is fortunate for the nation as a whole that the management of the railroads is in the hands of men who have some comprehension of the labor problem rather than under the domination of publishers willing to distort facts and impoverish labor for the sake of advertising profits."

These statements plainly mean that, in Mr. Harrison's opinion, the *Railway Age's* editorial policy is not in accord with the policy of railway managements; and as he is chairman of the Railway Labor Executives Association, they should constitute the most authoritative possible exoneration from a labor union source of the *Railway Age* from the charge of being a spokesman of the railways.

### "Every Knock a Boost"

What is the true significance of the criticisms of *Railway Age* emanating from railway labor leaders and especially from Messrs. Whitney and Harrison, whose differences, rivalries and personal feelings are so well known to all persons familiar with labor union politics? Why do they single out the *Railway Age* especially for their attacks and aspersions? The answer is obvious. The *Railway Age* for months, and especially recently, has been more fully and forcibly discussing than any other organization or agency all that is involved in the movements of the unions for advances in wages that would make them higher than before the depression. The presentations of facts made by this paper have been more and more widely quoted by the press throughout the country, and especially by newspapers in small cities and the rural districts. The labor leaders fear the reaction of public sentiment against their demands and policies which may result. Never in its long history has the *Railway Age* been so flattered by any commendation it has received as it has been by the recent flood of abuse from labor union sources.

But why has this paper criticised as it has the de-



mands made this year by the labor leaders and so strenuously opposed the granting of them by railway managements? Mr. Harrison says that in the editorial in its issue of August 14th, entitled "Time to Fight," this paper did not take the position that the railroads were not financially able to grant the wage increase (of 5 cents an hour to the non-transportation employees); nor did you \* \* \* contend that the employees were not entitled to the increase. The usual implications, of course, were present."

In order that there may be no further question regarding its attitude, the *Railway Age* does now contend that the railways are not in the year 1937 financially able to grant the great bulk of the wage increases that have been demanded, and that if "ability to pay" is a vital factor in the determination of what wages should be paid, then most of the employees to whom advances already have been made were not entitled to them and those still demanding them are not entitled to them.

#### **Ability to Pay No Concern to Labor Leaders, But Is Inescapable**

The labor leaders maintain that "ability to pay" should be given little or no consideration. But obviously the industry of the country as a whole cannot pay more than it is able to pay. The total amount of wages that industry as a whole can pay is determined by its total gross earnings. From its gross earnings it must meet operating expenses, taxes and return upon investment. If its total wage bill becomes excessive it must curtail or cease paying return upon investment, or taxes, or reduce its purchases of equipment and materials, or reduce its employment, or do all these things. Undue reduction of return upon investment means undue reduction of new investment and decline of the total volume of business necessary to provide employment. Undue reduction of industry's ability to pay taxes deprives government of means necessary to its support. Undue reduction of industry's purchases of equipment and materials destroys the business of those from whom purchases otherwise would be made and their ability to give employment. In other words, advances in wages in excess of the ability of industry as a whole to pay deprives industry as a whole of the ability to carry on, reduces the total volume of business done, causes depression and unemployment and injures most of those who are supposed to benefit by the advances.

This being true of industry as a whole, it follows that if wages in any particular industry are advanced beyond its ability to pay in wages, it must either pass the excessive part of its burden along to other industries and their employees or go down in bankruptcy. Under what conditions in the railroad industry, then, were the recent movements for advances in wages begun? In the first six months of 1937 railroad freight loadings were 14 per cent larger than in the first six

months of 1936, gross earnings were 11½ per cent larger and net operating income was 25 per cent larger. Purchases of equipment and materials were 42 per cent larger than in the first half of 1936. The railways were apparently coming out of the depression and were utilizing to the utmost their increased buying power to improve and enlarge their service. But their freight loadings were still 26 per cent less, their gross earnings 32 per cent less, their operating expenses 31 per cent less, their net operating income 47 per cent less and their purchases of equipment and materials only about two-thirds as great as in 1929. Nevertheless they were paying as high basic wages as in 1929.

If conditions in the industry and the basic wages it was paying ever were such as to make demands for large advances in wages unreasonable because of exceeding its ability to pay this was the situation in the first half of 1937. Nevertheless, in the teeth of these conditions, labor leaders started movements for advances in wages the granting of which obviously would have virtually wiped out all the net operating income being earned, bankrupted many railways in addition to those already in insolvency and destroyed the industry's ability to continue the buying of equipment and materials necessary to enable it adequately and satisfactorily to serve the public.

#### **Pay Rise Demand Arose with Union Chiefs, Not Membership**

Why were these movements started under such conditions? Not because of any general dissatisfaction among railway employees. There was some reasonable dissatisfaction regarding the pay of some of the lower paid classes of employees, but this did not justify movements for advancing the pay of all to levels much higher than before the depression. The movements were started principally because of political rivalries between some of the higher railway labor leaders, especially Messrs. Whitney and Harrison; and the unreasonable demands made have been pressed so persistently, largely because each of the rival labor leaders has been determined to show that he could extort at least as much from the carriers as any of the other labor leaders.

The *Railway Age* has been as outspoken and vigorous as it has in criticising the wage demands of the unions and opposing the granting of them by the railways because it has believed that substantial advances in railway wages under present conditions, and especially in view of the decline of general business within the last four months, would not only disregard "the ability to pay" of the railways, but would also force them to discharge many employees and reduce their buying of equipment and materials with results that would not only be disastrous to them but harmful to general business and the general public. The total buying of equipment, materials and fuel done by the railways increased from \$631,500,000 in 1935 to \$1,041,200,000 in 1936. It further increased from \$387,-

000,000 in the first six months of 1936 to \$514,000,000 in the first six months of 1937. These large increases in purchases were not only helping to put the railways in better condition to serve the public, but were contributing largely toward increasing activity and employment in many lines of business, and this paper was in duty bound to oppose advances in railway wages plainly tending to stop them.

### Don't Equipment Builders' Employees Have to Eat Too?

Mr. Harrison referred sarcastically in the concluding sentence of his open letter to "publishers willing to distort the facts and impoverish labor for the sake of advertising profits." It is quite true that the *Railway Age* derives its advertising revenues from those who manufacture for and sell to the railways and that its advertising revenues increase or decline with the increase or decline in the amount of buying done by the railways

from these manufacturers. It is also true, however, that the amount of business these manufacturers do, the number of persons they can employ and the amount of wages they can pay them are determined by the amount of buying that the railways do from them.

It may be the view of Mr. Harrison and other railway union leaders that the wages of railway employees should be increased entirely regardless of the effect produced upon the business and the employees of manufacturers of railway equipment and supplies or upon the entire business of the country; but the *Railway Age* frankly does not accept that view. This paper believes that the railroad industry and every other industry should be conducted, including the fixing of the wages it pays, with due regard to the effects that will be produced upon other industries and upon industry as a whole, and that labor leaders who do not accept and act in accordance with this view are a menace to the prosperity of the country, and, therefore, to all those who are, or should be, employed by industry as a whole.

## The Railroad Problem . . . and You!

September 14, 1937

### To the Public:

The Association of American Railroads has successfully shown through a series of advertisements during the past year that the railroads remain the outstanding transportation industry of the Country. It has shown that they are dependable and progressive; are necessary agencies of distribution in times of peace, and of defense and offense in times of war; and that not only are a million people directly employed by them, but that the life of virtually every citizen is in one way or another affected by their service.

The impression has been gained by some that all railroads are prosperous. This is partly true of only a very few. The reverse is true for the industry as a whole. In 1936 when the depression was over, the Net Income of all railroads was \$164,630,000. This was the amount available for improvements, reduction of debt, and dividends; yet even in that year railroads operating 38% of the country's total mileage had *no net income at all*, and about 30% were in the *hands of receivers or trustees*.

Now, what is the situation for 1937? The Net Income, which in 1936 was \$164,630,000, is subject in 1937 to the following adverse influences, *which are already in effect*:

Loss of emergency freight rates, authorized during depression by Interstate Commerce Commission, and cancelled December 31, 1936, which produced in 1936 revenues amounting to .....	\$150,000,000
Estimated increased cost over 1936 of materials and supplies being used in 1937 .....	125,000,000
Estimated increased charges over 1936 of Social Security and Retirement taxes for 1937 .....	59,000,000
Wage increases granted certain employees of 14 non-operating brotherhoods, August 1, 1937, costing about \$98,000,000 per year; estimated effect on year 1937 .....	41,000,000
	<b>\$375,000,000</b>

These four items total \$375,000,000, which is \$210,370,000 greater than the entire net income of 1936. For the railroads to *break even* in 1937, they must, in view of the foregoing loss of revenue and added expense, handle *nearly 30% more traffic* than they did in 1936. The actual increase in carloadings for the first eight months of 1937 compared with 1936 was only 11.9%.

*An Advertisement, Signed by President Hill, of the Louisville & Nashville, Being Published in Newspapers in L. & N. Territory.*

In addition to the above, the following items of increased cost are pending:

Demand of five operating brotherhoods for 20% increase in wages, equal per year to .....	\$116,000,000
Proposed law, sponsored in Congress (the bill has already passed the Senate) by certain railroad labor organizations, limiting the length of freight trains to 70 cars, which would add annually to railroad expense .....	100,000,000
Total .....	<b>\$216,000,000</b>

This figure added to the \$375,000,000 above, makes the huge total of \$591,000,000 per year, or *three and one-half times* greater than the actual net income of 1936.

It is self-evident to any thinking person, therefore, that with such additional burdens imposed on the railroads, a serious situation exists. One of two things is inevitable: Either higher freight and passenger rates must be obtained to offset these increases, or practically all the *remaining* roads will be bankrupt. This means that the living expenses of every citizen will be higher through increased cost of transportation, or there will be government ownership, with its consequent ills—heavier taxes to pay the cost of buying the railroads, loss of taxes now paid by the railroads, inefficient service and annual deficits to be made up by additional taxation.

In either case, the welfare of the public, as well as that of the railroads, is at stake. Nothing can be done about the increased burdens already in effect amounting to \$375,000,000, except to the extent that increased rates may be granted by the Commission. There is still time, however, to prevent the pending increases of \$216,000,000, but to do so imperatively requires the strong influence of public expression against such demands. The railroads have refused the demands of the five operating brotherhoods for increased wages; the issue may reach a fact-finding commission appointed by the President of the United States. The Train Limit bill is pending in the House, and will likely be given prompt attention by Congress next January.

The citizens of this country are so vitally affected by these two questions that they should oppose them in every reasonable way.

Further details of these and other railroad matters will be discussed in future statements.

# All-Purpose Diesel-Electric Locomotive

Fort Worth & Denver City will use 1,000-hp. unit for switching, transfer and mixed passenger and freight service

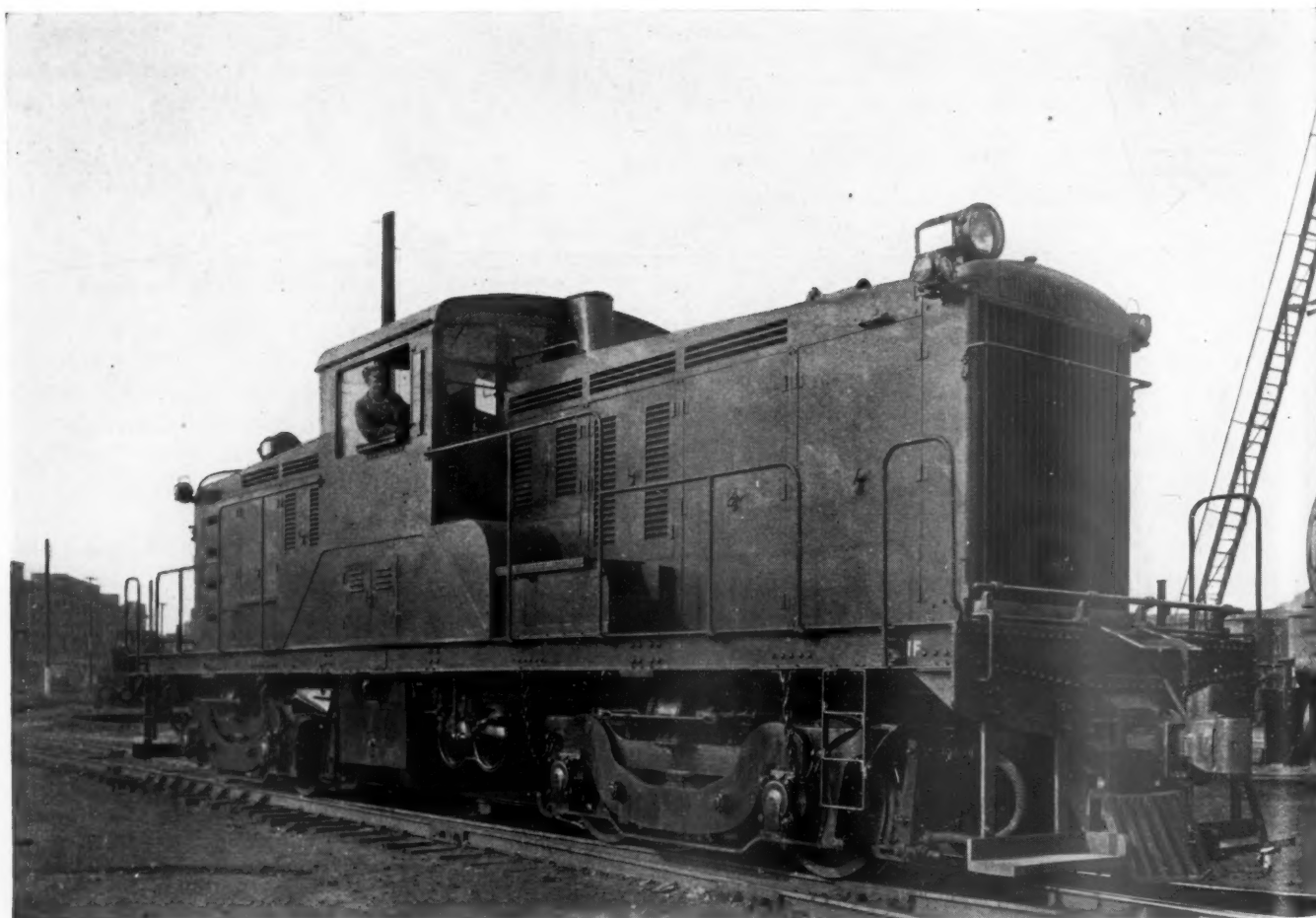
**A** STUDY made by the Fort Worth & Denver City indicated that a Diesel-electric locomotive would be best suited to meet the combined demands of switching, transfer and mixed passenger and freight service. Accordingly, an order was placed with the Cummins Engine Company, Columbus, Ind., for a 90-ton, 1,000-hp. Diesel-electric locomotive powered with two 500-hp. Cummins engines. The traction motors have a gear reduction sufficient for switching service and the armature construction is such as to permit locomotive speeds of 63 m.p.h. for the mixed service requirements.

The locomotive is of the steeple-type construction, with the operator's cab at the center and an engine hood at either end. The main locomotive frame is built up of structural steel, with heavy center sills for taking buffing stresses and for supporting the engines. Built-up

bolsters are provided, and between the two center plates are two steel plates with both sides polished and free to float between center plates in a bath of oil.

The cab assures maximum convenience and visibility for the engineer and helper. The air-brake handles are directly in front of the engineer, and the throttle and reverse handle at his side. The throttle arrangement at each operator's position is such that either engine throttle can be disconnected by lifting a spring return button. All meters and gages are either directly in front of the engineer or slightly to his side with the front of the panel facing the operator to permit full visibility.

There is a small control panel at each end of the cab, an electric heater at each operator's position, and a hand brake at one end of the cab. The cab walls are insulated with rock wool, and there are ventilators at each end above



Fort Worth & Denver City, 1,000-hp. Diesel-Electric Locomotive



the center stationary windows. The outside is of No. 12 and the inside of No. 18 U. S. standard gage sheets.

The two engine hoods are made of No. 12 U. S. standard gage sheets. Doors on both sides of each hood permit full accessibility to all parts of the engine-generator sets and auxiliary equipment under the hood. A combined ventilator and hatch is located in the top of each engine hood. The tops of the hoods are sloped slightly downward, and streamlined exhaust pipes are used to improve the general appearance of the locomotive.

A sectional type radiator with removable cores six inches deep and cast top and bottom tanks is located at each end of the hood. Air is pulled through the radiators by an eight-blade 54-in. belt-driven fan mounted on each engine. Each radiator is protected by a winter-front operated by hand from the engineer's position in the cab.

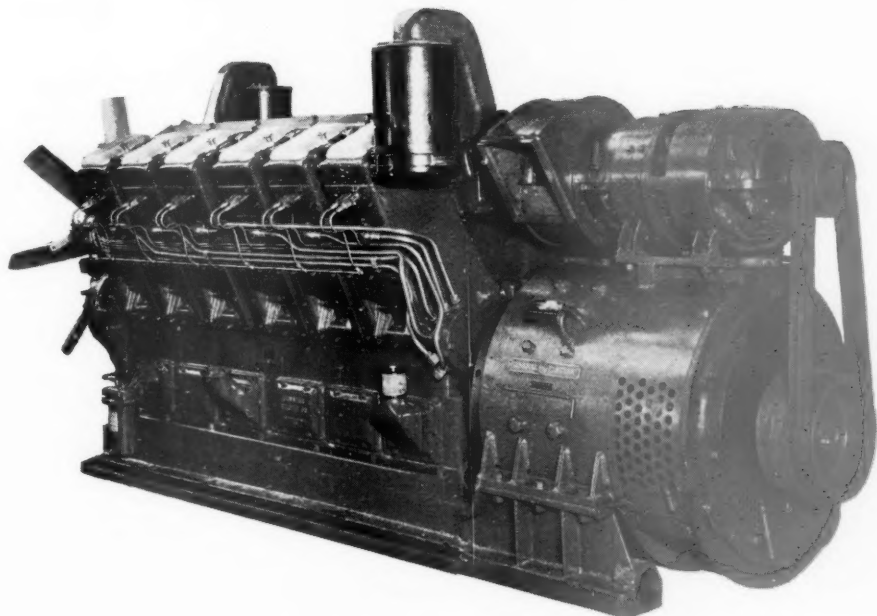
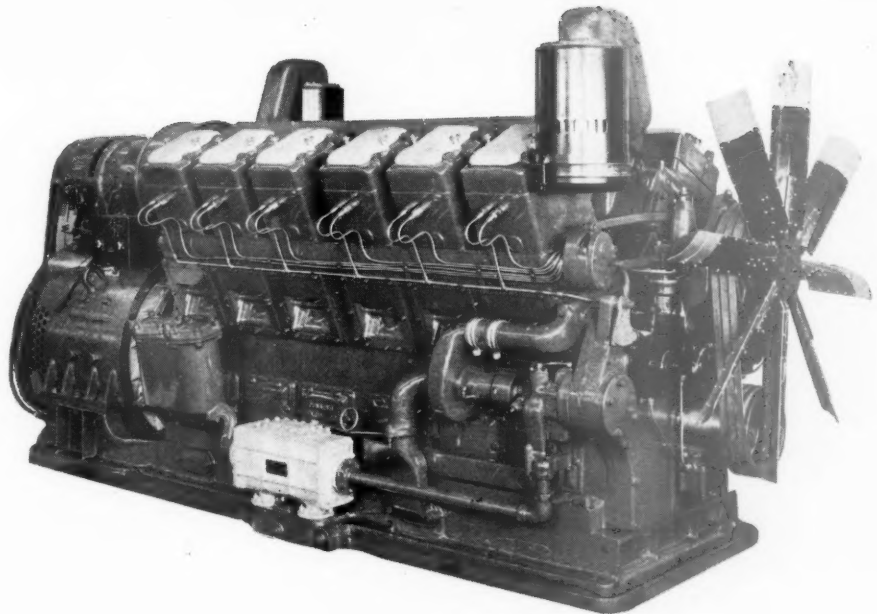
The trucks are of integral cast-steel frames with double drop equalizers and semi-elliptic leaf springs. The equalizers consist of two steel bars reinforced for spring hinge pins. Melcher Fafnir 6½-in. by 12-in. journal boxes are provided. The 38-in. rolled-steel wheels are mounted on axles which are 8 in. in diameter at the motor fit. American Steel Foundry clasp brakes insure maximum braking effort on the wheels.

The Westinghouse No. 6 ET air-brake equipment, suitable for double-end operation, includes Emeryville brake valve pedestal and diaphragm foot-valve for deadman's control. There are four 10-in. by 10-in. air-brake cylinders, one on each side of each truck, with cutout cocks for each pair of cylinders. Two 20½-in. by 84-in. air reservoirs, having a total capacity of 51,000 cu. in., are mounted crosswise of the locomotive alongside the 600-gal. fuel tank under the cab.

Standard swivel-butt type top-operating engine pilot couplers with 6-in. by 6-in. shanks and 11-in. solid knuckles are mounted in horizontal-key cast-steel coupler yokes with adapter swivel-butt sockets. The Miner draft gear is the 22XB type, with followers 2¼ in. thick.

### The Diesel Engines

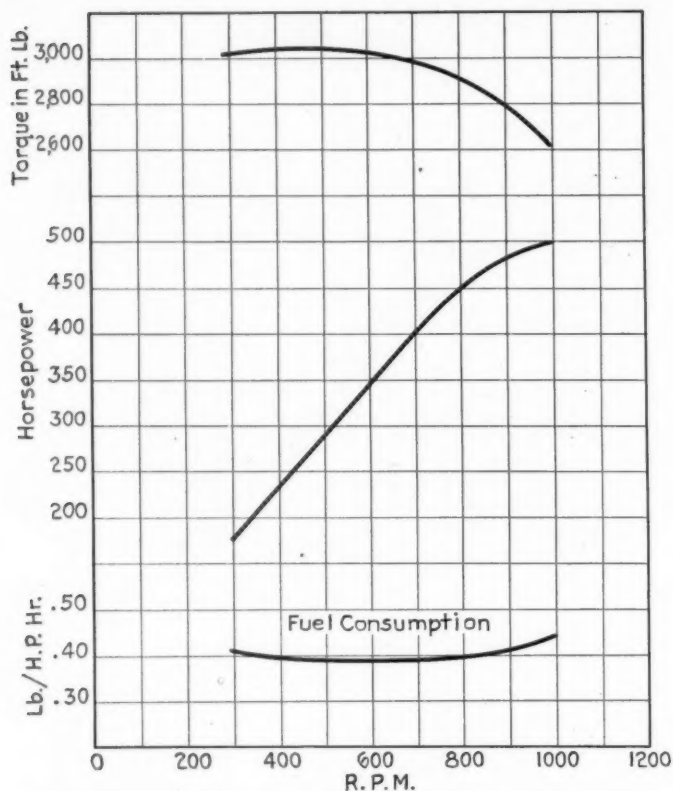
The two Cummins model VL-12 four-cycle Diesel engines with 7 in. bore and 10 in. stroke are each rated 500 hp. at 1,000 r.p.m. These engines are of the conventional V-type construction, with six cylinders in line on each side and connecting rods operating side by side on the crank pin. The cylinders are set at a V-angle of 50 deg. The piston displacement is 4,618 cu. in. The



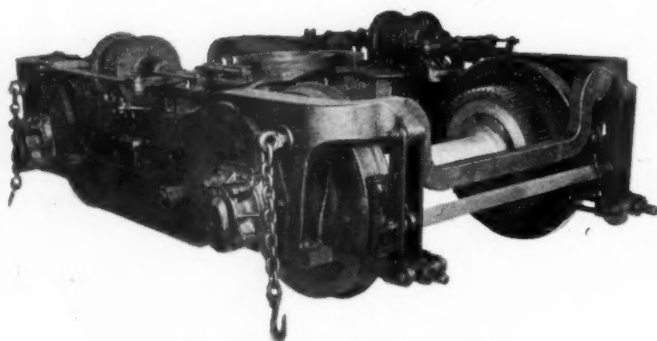
Right and Left Side Views of Cummins Engine Showing Main and Auxiliary Generators

crank shaft is mounted in seven main bearings, each 7 in. in diameter. The main bearing lengths vary from 3¼ in. at the intermediate bearings to 5¼ in. at the front. The crank case and engine base is cast steel and the cylinders are cast en bloc. The cylinders have removable wet liners and individual detachable cylinder heads. The pistons are of chrome-nickel iron and have five compression and two oil rings.

The crank shaft and cam shaft are heat-treated steel forgings and the connecting rods are steel forgings with removable steel-backed bearings. The fuel system used on this engine is the Cummins low-pressure system, having one low-pressure fuel metering pump and distributor for each bank of six cylinders. A single governor and hand throttle are connected independently to the pump. A fuel circulating pump is built integral with the engine. The engines are equipped with lubricating and fuel-oil filters and air cleaners. The capacity of the engine oil



Curves Showing Torque, Brake Horsepower and Fuel Consumption at Engine Speeds of from 300 to 1,000 Horsepower



One of the Four-Wheel Trucks

reservoir is 25 gal. The net weight of each engine with standard equipment is 14,150 lb.

Each engine can be started either electrically by the main generator from a 56-cell Exide storage battery or by air from a two-stage air compressor, driven by a gasoline engine.

### Electrical Equipment

Each engine drives through a flexible steel-disk coupling one General Electric type GT-543 single-bearing, split-pole, differential-type generator. Belt-driven from a shaft extension of the generator is a 5-kw. auxiliary generator-exciter set and a 74-cu.-ft. type WW-64 Quincy air compressor operating at 130 lb. pressure. A thermal relay is provided with each generator to compensate for any temperature change in the generator field, thus insuring that the generator characteristic properly follows the normal engine horsepower curve at full load. Full engine output is therefore available at normal operating speeds of 1,000 r.p.m. and over a wide range of locomotive speeds.

Each generator delivers its output to two General Electric type GE-716 railway-type heavy-duty 415-hp. traction motors with single reduction gearing. This motor has box-type frame and is equipped with constant-oil-level axle bearings and anti-friction armature bearings. The motors have their own ventilating fans, but are also separately ventilated from a blower on the shaft extension of the auxiliary-generator-exciter set. The motors are mounted with a double-nose spring suspension.

General Electric double-end electro-pneumatic control provides for two motor combinations, with provision for field shunting. In the first combination two motors are connected in series across each generator, and in the second two motors are connected in parallel across each generator. The transfer from one motor combination to the next and to field shunting is automatic, thus insuring maximum power without abuse to the electrical equipment.

A master controller, used essentially to throw the motor reverser, consists of a small drum with three fingers mounted in a box with a removable cover. Operated by a small handle located directly below the engine throttle handle, it provides "Forward," "Reverse" and "Off" positions. The operating shaft is mechanically interlocked with the engine throttle control mechanism so that the operating handle can be moved only when the throttle handle is in the idling position. The motor connections are opened and closed by cam-operated contacts actuated by an electro-pneumatically operated mechanism.

An electro-pneumatically operated commutating switch is provided to reverse the connections of the traction motor fields. This operation reverses the rotation of the motors and hence the direction of the locomotive. The reverser is interlocked so that it cannot be operated improperly.

Relays are provided for various purposes. With each auxiliary generator is a voltage regulating relay, consisting of two sets of double-throw contacts in vacuum tubes. One vacuum tube is operated by a voltage coil and the other by a current coil. This relay holds constant voltage on the auxiliary generator over the speed range from idling to full speed of the Diesel engine.

To each auxiliary generator is connected a magnetic type relay which is set to operate on over-voltage so that if, for any reason, the voltage of the auxiliary generator becomes too high, the relay will remove the auxiliary generator field as well as disconnect the traction motors.

The negative side of each main generator is connected to ground through the coil of a ground protective relay. This will operate and lock open if a ground occurs on the connections of this particular power plant. When the relay operates, it opens the exciter-field contactor.

Another relay is provided so that if the locomotive is hauling a train and encounters a heavy grade such that the current exceeds a predetermined value, the relay will pick up and automatically transfer back to the full-field position from reduced-field position, or, if it is already in the full-field position, to the first motor combination. Since the relay operates on current, the operating coils are connected in series with the traction generator and carry full generator current at all times.

Two group-control switches, one having 13 and the other five buttons, are located at each operators position. All operations of the locomotive can be controlled from the push buttons of these control switches.

This locomotive is being delivered to the Chicago, Burlington & Quincy Railroad for demonstration purposes before it is shipped to the Fort Worth & Denver City.

# Do Roads Need to Earn Anything?\*

Few persons seem to realize that earnings govern inflow of capital, dearth of which would kill the carriers

By Fairman R. Dick

**T**HE position of railroad bonds today contrasts unfavorably with the position which they occupied 30-odd years ago. At that time railroad bonds of the savings bank type, that is bonds outstanding at a conservative rate on important main line mileage, were generally regarded as the safest form of corporate investment. This esteem resulted from the excellent record established by this type of security in the depression of the 'Nineties for continuity of interest payments and market stability. This is not the case today. Of the various types of investments generally approved for savings banks, railroad bonds would seem to have the worst record, with the possible exception of real estate mortgages.

Earning power, in the last analysis, determines the status of a bond. If available earnings are unquestionably sufficient to pay interest, the bond is a satisfactory investment. If earnings are not sufficient or even if there is doubt as to their sufficiency, then the bond does not qualify as high grade. During the depression of the 'Nineties there was never any doubt as to earnings being sufficient to pay interest on the conservative type of railroad bonds, regardless of whether the issuing road was in receivership or not. The high position which railroad bonds held in the esteem of investors 30 years ago was largely due to this satisfactory record of earnings.

## Restoration of Credit Depends on Answers to Two Essential Questions

If railroad credit is to be restored to a sound basis in the future and conservative railroad bonds are to regain their position as savings bank investments, the following questions must be answered in the affirmative:

(a) *Is the railroad industry under today's conditions economically sound and capable of earning an adequate return in view of the country's demand for transportation as a whole and the competition of other forms of transport?*

(b) *Is the need for adequate earnings for the railroads, sufficient to maintain sound credit conditions, full recognized by the public and the government?*

The danger of trying to give a condensed opinion on the potential earning power of the railroad industry lies in the fact that it is impossible in a few words to marshal the facts necessary to support an opinion. My studies, however, have convinced me that savings bank investors have nothing to fear on this score. It's quite obvious that the efficiency of the railroads for long-distance mass transportation is still clearly apparent, and the fear of their inability to compete with other forms of transportation is grossly exaggerated. This is not to say that the truck has not a legitimate field of operation—of

course it has—but this field is limited to comparatively short distances involving what might be called retail transportation, including pick-up and delivery.

The limitation of the scope of truck competition can be visualized when it is realized that five men in one train can carry as many tons as 500 men in trucks. The handicaps of long distance transportation by trucks, therefore, would seem insuperable. During the worst depression years many truck owners operated by cutting rates, and by working their men unconscionable hours at starvation wages were able to enter temporarily into the field of competitive transport over long distance. Where the operating factors are equalized and the trucks deprived of these temporary operating advantages, such competition must disappear. I am informed in quarters in which I have the greatest confidence that this uneconomic competition is rapidly disappearing at the present time.

Water competition cannot be dismissed quite so lightly, but the railroads have always in the past successfully competed with water transportation. In spite of the Panama canal I am convinced that this condition has not materially changed; the canal, of course, does not go everywhere.

## Are Englishmen 17 Times Smarter Than Yankees?

I should like to point out that the railroads still seem to be in a reasonable sound condition in a country where operating conditions are far more difficult than those existing in the United States. I refer to England. In that small densely populated area all the competitive and operating factors seem to be far more unfavorable than in this country. In the United States, the average length of haul is 357 miles and in England it is 56 miles while, as regards rates, English railroad charges the shipper an average of 2½ cents per ton-mile whereas in this country the comparable figure is slightly under 1 cent. Short hauls, high rates and well developed highways would seem to furnish most favorable conditions for truck competition—and, as for water competition, it should be pointed out that practically every important traffic producing center in England is either on or within a short trucking distance of free open waterways far superior to the Panama Canal.

A careful analysis of England's railroad conditions might reveal certain compensating advantages but it is difficult to imagine that any such advantage could be really important. It may be, of course, that the British nation is more skilful in railroad matters and that through superior skill they have overcome a sevenfold handicap in regard to length of haul, and a two and one-half fold handicap in regard to rates, or a combined handicap of over 1,700 per cent. While it is possible that an Englishman may be more clever than a Yankee, I am disinclined to believe that this is so; at any rate I am sure that he is not seventeen times as clever, or even seven times as clever.

\* Abstract of an address before Massachusetts Savings Bankers at Swampscott, Mass., on September 17. Mr. Dick, who in addition to his connection with the investment house of Dick & Merle-Smith, is also advisor on finance and credit to the A. A. R., made it clear to his audience that his views were his alone, and not official.



In saying, however, that the railroads are able to compete successfully with other forms of transport, *I make one reservation*. That is, that the government does not favor one form of transport as against another. It is obvious that by subsidizing one form of transportation, or by penalizing another, the competitive situation can be radically altered. It is within the power of the government so to discriminate against the railroad industry as to destroy its earning power regardless of what its inherent economic strength may be. But, strictly speaking, unsound competitive conditions in the railroad industry sponsored by the government have nothing to do with the answer to the first question, which is purely and simply the potential earning power of the industry, assuming no artificial assistance or interference whatsoever by the government.

I am, therefore, answering my first question in the affirmative. My second question is whether the need for adequate railroad earnings will be recognized by the general public, the shipping public and the government, and I regret that I cannot answer this question as yet in the affirmative. As a matter of fact, if the question were to be answered today the answer would be, "No." It is quite clear at the present time that the need for adequate railroad revenues is not recognized, even by many of those who have substantial investments in railroad securities.

The necessity for this recognition in a democracy is clear. If the need for adequate earnings in a regulated industry is not recognized, it is obvious that that industry will never be permitted adequate earnings. No regulated industry will be permitted, and I may add, none should be permitted, to earn an amount in excess of that required to maintain sound credit conditions. If, however, public opinion and government edicts unduly restrict railroad earning power through failure to appreciate the level of earnings necessary for sound credit conditions, then it is certain that sound credit conditions cannot be maintained or restored in that industry.

### What Are Adequate Earnings?

What are adequate earnings? I find a pretty complete confusion of thought in seeking the answer to this question, and it is a confusion of thought that existed long prior to this depression. Before the passage of the Hepburn Act in 1906, giving the Interstate Commerce Commission power to fix rates, the railroads had earned, in general, all that they could under competitive conditions. Subsequently railroad earnings were determined by the Interstate Commerce Commission, because, in general, the level of earnings was dependent upon the level of rates which the Commission was empowered to fix. Following 1906, a gradual but continuous increase in prices and wages took place and, notwithstanding growth in the volume of traffic, the railroads were forced to apply for increases in rates and, from time to time, certain increases were granted. However, these increases do not seem to have been based on any critical analysis of what a necessary level of earnings really was, but merely on general comparisons with the past. It might be said that the method of reasoning employed was about that described by old New England sea captains as navigating "by guess and by God."

As time went on, however, it gradually began to be recognized that railroad earning power was diminishing and that credit was deteriorating; and when plans were in process for restoring the railroads to their owners following the war, it was recognized that legislation was necessary to improve the credit position of the railroads from what it had been at the beginning of

federal control. The authors of the Transportation Act of 1920 undertook to solve this problem by defining an adequate level of earnings. This level was based on a certain percentage of return on the valuation of the property as determined by the Interstate Commerce Commission. The Commission was given the duty of determining the valuation of the railroads and also of determining a fair rate of return. This yardstick, therefore, was flexible—and in that respect the Transportation Act rather begged the question, although it did compel the Commission to state publicly what constituted an adequate level of earnings through orders fixing or changing the fair rate of return.

It is unnecessary, however, to comment further on this "yardstick" since Section 15a of the Transportation Act which contained it was amended in 1933 and the following section substituted:

In the exercise of its power to prescribe just and reasonable rates the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest, economical and efficient management, to provide such service.

### Similarity of All Earnings "Yardsticks"

The Act so amended really contains nothing new, for practically the same words were in frequent use by the Commission prior to the repeal of Section 15a. For example, in the O'Fallon decision in 1927, which was the opinion of the Commission in a valuation case, you will find repetition of the idea that an adequate level of earnings is one that will attract new capital to the industry so that *adequate* national transportation may be maintained. I quote from this decision as follows:

The end in view, as we have stated, is the maintenance of an *adequate national railway transportation system*. Such a system, so long as it is privately owned, *obviously cannot be provided and maintained without a continuous inflow of capital*. Obviously, also, such an inflow of capital can only be assured by treatment of capital already invested which will invite and encourage further investment. We think it must be conceded that under a system of public regulation which produces such a result private property cannot be confiscated.

You will note how this statement ties in with the section of the Transportation Act previously cited. Adequate earnings, as defined by the Commission, are earnings which will bring a continual flow of capital into the industry. In general, I agree with the Commission's definition of adequate earnings, subject to a certain clarifying phrase which I have no hesitation in saying the Commission would have added if it had been thought necessary for the purpose of clarity. That clarifying phrase is that *this inflow of capital must take place in the proper form*. More specifically, this inflow of capital must be in such proportions and on such terms as will not distort the capital structure and weaken it in its ability to withstand adverse conditions. In other words, if the earnings of a railroad are at a level where it is unable to sell stock but must increase its debt ratio in order to obtain funds for improvements, then this additional capital is not being attracted in the proper form and obviously earnings are not adequate.

In the same way, earnings can be inadequate even when stock is sold if it is necessary to sell stock on terms where the increase in capitalization is greater than the increase in plant, or the increase in dividend requirements is greater than the return to be expected from the increased plant. Increasing stock faster than plant is increased is a form of watering stock, and the

main reason why stock watering is frowned upon is not only because it deceives the investor but because dilution of capitalization makes it increasingly difficult to effect further sales of stock. When, in the course of time, all further sales become impossible then there is no recourse except to pile up debt again. It is my opinion, therefore, that a level of earnings which necessitates the raising of new money for improvements by increasing the debt ratio or by stock watering is clearly inadequate.

To illustrate the point, I quote from a brief submitted by security holders' committees to the Commission on September 14, 1928, in connection with the rates in Western Trunk Line territory. This brief was an argument as to the inadequacy of rates and evidence was presented showing failure to earn the so-called fair return prescribed by the Commission, but the brief went beyond the provisions of the Transportation Act and pointed out to the Commission evidence as to the inadequacy of earnings based on the necessity of attracting new capital in an improper form and consequent distortion of capital structure. I quote from it as follows:

The other result which has followed from the earnings and credit situation referred to is *the distortion of the capital structure of the territory*. The table on page 25 of the abstract contrasts the manner in which the new investment of the eight western trunk lines and of all other Class I roads has been financed. In the case of the other roads the very healthy ratio of 50 per cent in bonds and 50 per cent out of earnings and from the sale of stock has been adhered to. The western trunk lines, however, have not sold a single share of stock and have financed 80 per cent of their expansion since 1922 out of bonds.

#### **Ignorance Displayed in Rate Case Arguments**

If some may ask why I am spending so much time upon a point concerning which there is no logical basis of dispute, my reply must be that in many quarters this truth seems to have been either ignored or forgotten. If there are any doubts as to this, listen to the evidence and hear the arguments in the important rate cases before the Commission. You will hear from those who urge reductions, or oppose increases in rates, vigorous arguments that the need for earnings would be reduced if debt were scaled. Likewise, if you read the arguments before committees of Congress when legislation is under discussion which would have the effect of increasing railroad expenses, you will find the argument that a reduction in railroad fixed charges would make possible the assumption by the industry of higher operating costs without ill effects. And in all these arguments you will probably never hear mentioned, even once, this basic underlying fact recognized by all sound students of credit that earnings insufficient to attract capital in the proper form are not adequate earnings. On the contrary, you will find a general assumption that earnings may still be adequate if only bonds can be sold, regardless of the effect on debt ratio. And what is even more surprising, you will actually hear arguments that seem clearly to mean that debt should be scaled so as to make it possible to replace old debt with new debt.

All these arguments furnish convincing evidence that a real recognition of what in fact constitutes adequate earnings is lacking. Not only that, but *all the arguments used to demonstrate that the need for earnings can be reduced, actually are arguments that higher earnings are necessary*. For, of course, if it is determined that a sound capital structure necessitates a low debt ratio, then it follows that a greater proportion of new capital must be raised through the sale of stock. A stockholder who assumes all the hazards of stock ownership is never willing to buy unless he can be assured that his dividends will be larger than if he had bought

bonds. A policy of obtaining a large proportion of funds for improvement through stock financing necessitates larger earnings than where the reservoir of savings bank funds can be tapped.

#### **Refinancing Which Repeats Past Mistakes**

The other field in which there is ample evidence of failure to recognize the need for adequate earnings is that of reorganization. A surprising characteristic of many reorganization plans presently under discussion is a lack of recognition of the need for substantially increased earnings if sound credit conditions are to be re-established. What is even worse, *it seems to be assumed practically without argument that through changes in capitalization effected by reorganization sound credit conditions can be restored regardless of earnings*. As I have explained, sound credit conditions involve conditions under which new capital can be attracted in the proper form and an examination of many plans of reorganization would seem to indicate not only a failure to realize this but a deliberate attempt to attract capital in the wrong form.

Reorganizations, in a way, are a recognition of past mistakes. If it is necessary to scale debt today because too much money was attracted in the past through the medium of fixed interest bonds, it would seem obvious that plans for the future should provide safeguards against similar methods of financing by sale of fixed interest securities. In other words, *plans for reorganizations to correct past mistakes should not provide for the repetition of the same mistakes*. If you examine many of the plans now proposed, however, you will note that, whereas it may be determined in reorganization that, let us say, 20 per cent of the capital should have been attracted through issuing bonds in the past, plans for the future provide for attracting 75 per cent of the funds for improvements by selling fixed interest securities. One of the most dramatic illustrations of this line of reasoning is the plan in regard to the Western Pacific recently issued by the Interstate Commerce Commission.

In this plan it is determined that a sound financial structure today would have necessitated the limitation of bond issues in the past to but 7½ per cent of the cost of the property. To the extent that fixed interest debt is in excess of this ratio, it is to be scaled. Having determined, therefore, what a sound financial policy for the past would have been, the plan then proceeds to approve the bonding of future additions to the property at 75 per cent of their cost. My utmost sympathetic endeavors to puzzle out the basic policy underlying this proposal have met with complete failure.

#### **Have Prospects Improved 1000 Per Cent?**

My first interpretation, the obvious one, that debt ratio for future financing 10 times in excess of that determined to be sound for past financing must be based on a forecast that in the future railroad traffic conditions may be 10 times as favorable, railroad management 10 times as efficient, and railroad regulation 10 times as liberal. However, I was forced to discard this interpretation as it is obvious that all these favorable factors, when they should appear, would affect the whole plant and not only the future additions. I regret that I have been unable to find any logical answer.

Proposals such as these furnish convincing evidence of a broad, popular misconception. Their proponents *evidently believe that the railroads do not need to attract any important amount of capital for the future, or also that the form in which this capital is attracted is of*



no importance. Nothing could be more obvious than that an earnings level where all financing must be effected by bonds is inadequate unless it is contemplated that from time to time the mounting volume of bonds be periodically scaled by reorganizations. If these arguments in fact mean anything, they mean the approval of a policy of obtaining money for improvements by the sale of fixed interest obligations and the repudiation of these obligations during periods of depression. Even if such a plan would work, it would be an obvious fraud on the investor and should not be approved by any right-minded man. However, such a plan would not work. Investors may have short memories but no matter how short these memories may be a financial policy necessitating continual receiverships would eventually result in an avoidance of the industry.

### Should All Hope Be Abandoned?

If I actually regarded these proposals as comprising the best thought that this country could produce on the subject, I would suggest not only that all hope be abandoned for the railroad industry but also to throw up the sponge on behalf of the United States itself. But I do not make this suggestion. I merely submit the evidence that there exists a complete and widespread misunderstanding in regard to the need for adequate railroad revenues, and I point out that plans for restoring the railroad industry to a sound credit basis are in their rudimentary stages. The very absurdity of many of the current proposals to restore railroad credit is a constructive feature of the situation because if the proposals were less grotesque, there would be greater danger of failure to realize their unsoundness.

However, in my opinion, this general failure to recognize "... the need ... of adequate and efficient railway transportation service ... and of revenues sufficient to enable the carriers ... to provide such service" as the amended Transportation Act quoted above puts it, with its inescapable corollary of adequate earnings, results not from reckless disregard of the truth but rather from an assumption that *the railroad plant is built and finished and will never require any important additions*. Misconceptions of this character are common phenomena in all economic depressions. At such a time there is always a general belief that capital is overbuilt and that no further improvements will ever be needed. After a depression these phenomena disappear and the country proceeds to increase real wages and the standard of living through additional capital outlays efficiently used.

So, as I said at the outset, if I were forced today to answer the question as to popular and governmental recognition of the need for adequate railroad earnings, the answer would be, "No." But in view of all the evidence on the subject I am firmly convinced that recognition of the need for revenues which will enable the railroads to improve their plant and continually give better service at lower cost will be fully recognized before it is too late, and that while the answer to this question today would be, "No," the answer before very long will be, "Yes."

Savings bankers are in a position to aid in bringing about an affirmative answer to my second question by insisting that plans for providing future new funds for the railroad industry must be sound and must not contemplate a deliberate violation of financial standards now determined to be sound. The mistakes of financing improvements by bond issues in the past must not be deliberately repeated. At the present time in many instances savings bankers will be asked to authorize the pledging of their property for the issuance of new debt at a

high ratio to the cost of improvements and to an indefinite and practically unlimited extent. If they consent to this and another receivership follows, they will find that the securities they receive in today's reorganization will be preceded in lien by the bonds sold for improvements.

This has actually happened in the Western Pacific. The old first mortgage bondholders gave up their mortgage and accepted stock. This in itself merely meant that a contingent charge was substituted for a fixed charge but, in addition to this, consent was given to pile up a prior debt. The railroad is now in receivership again, with the result that it is now proposed to give practically the entire property to the bonds representing the money raised for improvements and to wipe out the old bondholders so that their original investment will be a total and complete loss.

To insist, however, on a sound financial policy for the future does not mean blocking the supply of adequate funds for improvements. The raising of this new money is not only necessary, as emphasized by the Commission in the quotations previously referred to from the point of view of those who use the railroads, but continuous improvements are important from the standpoint of all security holders. Security owners can suffer just as great losses from the obsolescence of their property as from the piling up of debt. During depression periods, when earnings are low and stock cannot be sold, capital improvements must be financed by piling up debt and violating the standards now determined to be sound. Such bond issues, to the extent that they exceed the ratio of debt now determined to be sound, should be regarded as temporary and not perpetual. Definite plans and safeguards must be set up to insure that these temporary excesses in debt must be refinanced by sales of stock, or otherwise, as soon as earnings permit.

### Danger in Sinking Fund Formulas

Many suggestions have been made which advocate maintaining a sound debt ratio by means of a sinking fund. In my opinion, none of the methods so far suggested will work, but, even if they would work, they would not be satisfactory for the reason that they are based on compound interest working over a long period of years. Compound interest is sure, but it is much too slow for the economy under which we are living where depressions come at fairly frequent intervals. What is even more important, we cannot predict with any certainty just when these depressions will arrive, and that is why I feel so strongly that when the level of earnings permits a railroad to get its house in order it should do so at once and not delay. Depressions will not await the functioning of compound interest.

### Lacking Adequate Earnings, Debt

#### Control a "Scrap of Paper"

Sound policies for debt reduction and debt control are nothing but scraps of paper unless earnings are at a level which permits the policies to be carried out. On the other hand, the establishment of sound principles for railroad finance will assist the railroads in increasing their earnings by emphasizing the need for doing so. Setting up sound standards for railroad finance will help to clear away the greatest danger in the whole situation, that is, the danger inherent in a general failure to appreciate that sound financial policies depend on adequate earnings and, what is even worse, an assumption that sound financial policies remove the necessity for adequate earnings.



# The Lehigh Valley Builds All-Steel Cabooses



Twenty wood-lined and insulated cabooses with all-steel underframes and superstructures being turned out of Sayre shops

**T**HE Lehigh Valley has completed in its shops at Sayre, Pa., the first of a series of 20 "safety" cabooses of all-steel construction with cushion underframes. This caboose, the exterior and two interior views of which are shown in the accompanying illustrations, has a double wooden floor, is lined throughout with  $1\frac{3}{16}$ -in. tongue-and-grooved pine, and is insulated with a  $\frac{3}{4}$ -in. layer of mineral wool between the side and roof lining and the steel sheathing. It is equipped with two upper and lower bunks at one end and a single lower bunk at the other end; the mattresses for these bunks are made of sponge rubber. Other equipment includes lockers, cooking facilities, washing facilities, a lavatory, a water cooler and a refrigerator. This caboose, built to meet the requirements of the State of New York, has been pronounced one of the safest units of its kind by various safety inspectors.

The caboose is 32 ft. 8 in. long over the coupler striking castings, is approximately 10 ft. 7 in. high above the rails, and has a maximum width over the hand holds of 10 ft. 9 $\frac{3}{8}$  in. Its light weight in working order is 44,400 lb. The superstructure is 25 ft. long over the end sheets, while the inside height is 6 ft. 9 in. with the cupola extending 2 ft. 6 in. above the ceiling. The end platforms and steps, and the running board on the roof proper as well as above the cupola is made of  $\frac{1}{8}$ -in. diamond plate 19 $\frac{1}{8}$  in. wide. Four 18-in. by 22-in. windows fitted with sliding sash are located in pairs on each side of the caboose. The cupola has two 15-in. by 21-in. sliding-sash windows on each side and two similar windows front and rear.

Plain carbon steel, is used throughout in the construction of this caboose. The center sill is built up of 10 $\frac{1}{4}$  in. channels, with  $\frac{1}{4}$ -in. by 14 $\frac{1}{2}$ -in. cover plates. The body bolsters are 17 in. wide with  $\frac{7}{16}$ -in. by 14-in. cover plates. Angle braces extending from the body bolster to the end sill are formed of 6-in. channels weighing 8.2 lb. per ft. Crossties are of 3-in. Z-bars supporting 3 $\frac{1}{2}$ -in. by 2-in. by  $\frac{1}{4}$ -in. angles for bolting 1 $\frac{3}{4}$ -in. by 5 $\frac{1}{4}$ -in. tongue-and-grooved floor boards. A layer of  $\frac{1}{16}$ -in.

water-proof paper is laid between the floor boards and the  $1\frac{3}{16}$ -in. floor sheathing.

The body framing consists of 3-in. 6.7-lb. Z-bar side posts, 3-in. 6.7-lb. Z-bar side plate and 5-in. by 3-in. by  $\frac{3}{16}$ -in. belt rails. The corner posts are 3-in. 9.8-lb. Z-bars while the door posts are 4-in. 7.25-lb. channels. Between the door posts and corner posts on the ends of the car there has been applied a 3-in. 9.8-lb. Z-bar to strengthen the ends. The corner posts are reinforced by the addition of a top gusset between the corner post and side post and a bottom gusset tied to the side sill. Window casings are of steel plate. The cupola framing is of 2 $\frac{1}{2}$ -in. by 2 $\frac{1}{2}$ -in. by  $\frac{1}{4}$ -in. angles formed to the shape of the cupola and secured to the Z-bar side plates. The carlines and end-plate supports are 2 $\frac{1}{2}$ -in. by 2 $\frac{1}{2}$ -in. by  $\frac{1}{4}$ -in. angles. Yellow-pine nailers or sleepers are bolted to the posts, carlines, belt rails, etc.



The Interior of the Lehigh Valley Caboose is Wood Lined and Has  $\frac{3}{4}$  In. of Mineral Wool Insulation



The Caboose is Equipped with Five Berths Having Rubber-Sponge Mattresses

The sides, ends and cupola are sheathed with  $\frac{3}{32}$ -in. steel plate riveted to the framing. The cupola end sheets are welded to the cupola roof and body roof to prevent leaks. Three 4-in. 13-8-lb. H-bars have been applied to the platform end sills, which serve as posts for the end railing.

One end of the caboose contains the conductor's desk, a lavatory, a 2-ft. 6-in. bunk 6 ft. 8 in. long, a stove, a water cooler, a wash basin and a portable table; the latter extends over the bunk when needed. The other end of the caboose is equipped with two lower and two upper bunks, the upper two of which are hinged and can be swung upward against the ceiling and locked in that position by a spring-lock bolt. All the bunks in this end of the car are 2-ft. 6-in. wide and 6-ft. 8-in. long. The lower bunks are 19 in. from the floor while the upper bunks, in lowered positions, are 4 ft. 4 in. above the floor. The cupola has an inside length of approximately 6 ft. 2 in. and is designed without the usual type of seats; the floor of the cupola section on each side extends the length of the cupola and is covered with a rubber-sponge mattress. Beneath the cupola seats are the lockers for trainman's equipment on one side, and a refrigerator on the other side.

The trucks of this caboose have 5-in. by 9-in. journals, cast-steel integral side frames 33-in. chilled-iron wheels, and a pair of elliptic springs at each end of the spring planks. The caboose is equipped with Type E  $6\frac{1}{4}$  in. by 8-in. A.A.R. top-operated couplers, AB air brakes, and a power hand brake at each end of the caboose. This caboose is finished in red enamel applied by the spray method.

## M-F Dust Guard

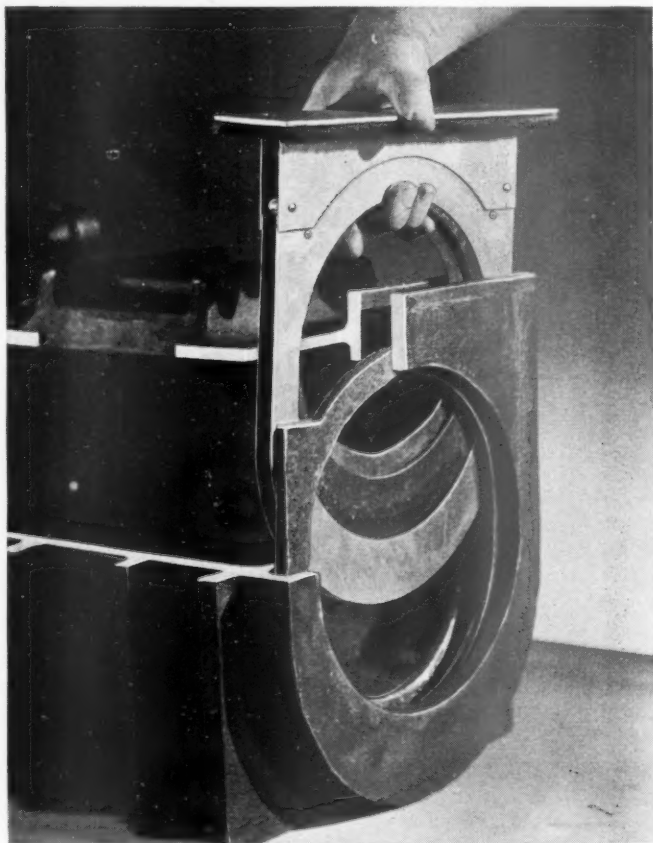
**A** DUST guard, known as the M-F, has recently been developed and placed on the market by the MacLean-Fogg Lock Nut Company, Chicago. This guard is designed to seal effectively the well side of the journal box as well as the opening around the axle, and it closes the top of the well so that no dirt can enter and accumulate here.

The construction and method of application of this new dust guard are indicated in the illustration. The dust guard comprises three pieces; namely, a water-tight steel and wool-felt gasket that keeps dirt and water out

of the back of the box, irrespective of casting irregularities; a floating seal frame and flexible leather washer, encircling the axle, and a riveted pressed-steel frame within which the seal moves up and down.

When the main dust guard frame, containing the seal, is pressed down into position, it is held tightly in place against the waterproof gasket by four small flat springs which press against the side of the dust guard well. An adjustable feature permits the top of the guard, with its felt-lined under surface, to come down firmly on top of the well, regardless of well depth, and thus make an effective and permanent well closure, irrespective of the roughness of the casting.

The floating leather washer, or seal, moves freely within the main dust-guard frame and contacts the axle with



New Type M-F Dust Guard Being Inserted in the Dust Guard Well

even pressure at all points, thus preventing the development of an oval opening through excessive wear. It can never contact the top of the frame nor get jammed in the dust guard well to be broken or worn by the axle. Moreover, it is said not to be susceptible to deterioration due to the action of oil or water.

The flexible leather washer normally points toward the inside of the journal box, but if it is desired to have it point toward the wheel, an expander ring can be furnished to maintain it in that position until the journal is inserted in the box.

THE INTERSTATE COMMERCE COMMISSION has found not justified proposed schedules canceling transit arrangements on grain and grain products in carloads from stations in Illinois on the line of the Alton when destined to stations in Iowa, Missouri and Nebraska on the line of the Wabash. Suspended schedules were ordered canceled and the proceeding discontinued.

# Roadmasters Meet in Chicago

Association approaches pre-depression levels in attendance, interest and character of program

**W**ITH an attendance of more than 300 railway officers and a total attendance, including exhibitors, of more than 700 men interested in track maintenance, with a program that held the interest of those present throughout all sessions and with an exhibit that was larger and more attractively displayed than in any years since 1929, the fifty-second annual convention of the Roadmasters' and Maintenance of Way Association, which was held at the Hotel Stevens, Chicago, on September 14-16, was the most successful since the beginning of the depression.

The program included the presentation of reports by committees on The Maintenance of Rail Joints, The Housing of Track Labor, The Trackman's Responsibility for the Safety of Highway Crossings, Good Practice in the Laying of Rail to Secure Workmanlike Results, and The Operation of Motor Cars to Avoid Accidents. These reports were supplemented by addresses on The Curing of Soft Roadbed by A. A. Miller, engineer maintenance of way, Mo. Pac.; The Roadmaster's Responsibility for Tie Life, by H. R. Duncan, superintendent timber preservation, C. B. & Q.; Building a Railroad for Today's Traffic, by H. S. Clarke, engineer maintenance of way, D. & H.; and The Relationship Between the Stores and Maintenance of Way Department, by W. S. Morehead, general storekeeper, I. C.

At the closing session of the convention, W. O. Frame, assistant superintendent, C. B. & Q., Wymore, Neb., was advanced from first vice-president to president; A. H. Peterson, roadmaster, C. M. St. P. & P., Chicago, from second vice-president to first vice-president; C. A. Lichty, Chicago, from assistant secretary to secretary; and E. E. Crowley, roadmaster, D. & H., Oneonta, N. Y., was re-elected treasurer. In addition, F. B. LaFleur, roadmaster, Sou. Pac., Lafayette, La., was elected second vice-president. The directors elected included G. L. Sitton, engineer maintenance of way, Southern, Charlotte, N. C., and E. L. Banion, roadmaster, A. T. & S. F., Independence, Kan., for four-year terms; and T. F. Donahoe, supervisor of road, B. & O., Pittsburgh, Pa., and W. H. Haggerty, roadmaster, N. Y. N. H. & H., New York, to fill vacancies.

A special feature of the program was a Question Box session on Tuesday evening at which questions submitted by members were presented for discussion. All sessions of the convention were presided over by B. E. Haley, president of the association and general roadmaster of the Atlantic Coast Line, Lakeland, Fla.

Coincident with the convention, 53 manufacturers of materials and equipment employed in track maintenance presented an unusually complete exhibit of their products under the auspices of the Track Supply Association. This association tendered a banquet to the roadmasters on Wednesday evening, which was attended by 450 persons.

## H. G. Taylor Opens Convention

The convention was opened with an address by H. G. Taylor, chairman, Western Association of Railway Executives, who pointed to the period of transportation

development which the Roadmasters association has witnessed during its 52 years of activity, a story the like of which could not be duplicated anywhere else in the world. Yet, Mr. Taylor said, the railways are still in a transition period; conditions are changing and railway men must be alert to the new demands of public service, alert to the new developments of manufacturers.

Turning to the convention program, Mr. Taylor emphasized the value of these annual conferences to the railways as well as to those attending. The Roadmasters association has the confidence of railway managements, he said by reason of the serious attention which it has long given to its work. He commended the association for its refusal to "junket" and urged the continuation of this policy, for, he said, the problems confronting railway men of all departments today are too serious to permit any letdown for pleasure.

Where are the railways heading? It the railways could be let alone, Mr. Taylor said, they would answer this question to the satisfaction of the American public. They are inherently sound, he said. Nowhere in the world is the service so high. The danger lies in the constant piling up of legislative and regulatory restrictions. Today the railways no sooner adjust themselves to one new regulation than some new burden is placed on them. He urged each roadmaster to use every opportunity to acquaint the public with the problems of the railways. The railway record is one of achievement and courage that railway men can be proud of. The public is friendly to the railways today, but if railway men do not tell their story, they will find themselves overcome by regulation until government ownership will be the only alternative. The railways should have opportunities, he said, as free men to serve a growing country as they have demonstrated that they can.

J. C. Irwin, president of the American Railway Engineering Association, extended greetings on behalf of that organization and urged co-operation between the two associations. He referred to the recent action of the A.A.R. in establishing a division of engineering research as a forward step that will do much to co-ordinate the solution of problems of mutual concern to the engineering and mechanical departments. He thanked the roadmasters for their assistance in developing and making effective important practices for track maintenance, many of which are incorporated in the Manual of Recommended Practice of the A.R.E.A.

C. M. Burpee, vice-president of the American Railway Bridge and Building Association, extended the greetings of that organization and emphasized the necessity of members of both organizations familiarizing themselves with the problems that confront the railways in all departments. The requirements of modern commerce, insofar as railway transportation is concerned, have been such, he said, as to completely revolutionize maintenance of way methods during the last 20 years. This has caused roadmasters and supervisors to feel more than ever before the need of additional enlightenment and education. Organizations like the Roadmasters Association have contributed much to this education.



Speaking on behalf of the Track Supply Association, H. H. Talboys, president of that organization, extended congratulations and then commented on the contrast between the methods employed in selling railway men and those in other industries. It is a pleasure, he said, because of the fact that so much time elapses between the time when a salesman calls upon a railway man and the time when a requisition is approved and converted into an order that high-pressure selling is of little effect. Rather, because of the care and thoroughness with which railways investigate new devices and materials before they purchase, facts are the prime consideration.

After advising the members regarding the activities of the association during the year, President Haley referred at some length to the unfairness of the competition to which the railways are subjected. After referring to the remarkable record of the railways in carrying nearly 500,000,000 passengers in 1935 without a single fatality resulting from a train accident, while more than 35,000 persons lost their lives in accidents on highways, he stated that "it seems ironic that our government maintains a Bureau of Safety for the purpose of investigating accidents that occur on railways, without the slaughter on the highways becoming a matter of public concern."

Turning to the relative responsibility of railway and highway carriers in their service to the public during floods, blizzards and other adversities, "no expense is spared by the railroads and their officers and men undergo untold hardships in order that the lines may be open for service."

"But, did you ever hear," he inquired, "of highway transportation companies organizing large forces and spending millions of dollars to reopen highways for their service? On the contrary, they lay off their drivers, usually without pay, and wait for county and state forces to open up the roads at the expense of taxpayers, leaving the people in the meantime to starve or to freeze."

In conclusion, Mr. Haley urged the members of the association to (1) continue to use every effort to bring about better and more economical maintenance, (2) endeavor to make better use of the labor-saving machinery provided by the railways, (3) work in closest co-operation with other departments for the good of the service, (4) keep posted on matters in which the railroads are vitally concerned in order to refute false propaganda, and (5) redouble efforts to promote safety to employees and the public.

Abstracts of the reports presented by the committees follow, while the addresses will appear in abstract in the next issue.

## The Housing of Track Labor

The report of the Committee on the Housing of Track Labor presented by the chairman, J. A. Turner, roadmaster, Atlantic Coast Line, reviewed the circumstances that have always required the railways to house at least a part of their track forces, and directed attention to the recent increase in housing facilities as the result of the marked trend toward the conduct of major maintenance operations by mobile gangs organized on the system, regional or divisional basis. The major part of the report was devoted to a description of what might be characterized as better practice in the housing of men in both buildings and cars. While referring to the prevailing use of converted box cars for this purpose, the committee made a particular point of the fact that many roads have converted old passenger train cars for this purpose, including the use of released dining, baggage and express cars for camp equipment.

Throughout its report, the committee stressed the desirability of providing the men with a degree of comfort that would be instrumental in attracting men and holding them in the service. Particular emphasis was placed on the necessity of avoiding overcrowding—ample space should be provided for each bunk, which should preferably be of steel construction. Toilet facilities, in the opinion of the committee, should receive particular attention, not only from the standpoint of the health and comfort of the men, but also to insure compliance with regulations of the communities in which the camps are located. In addition to supplying hot as well as cold water for lavatories, the committee recommended that camps be equipped with shower baths, and that where possible, electric lights be installed. Another feature not always included in camps, to which the committee made particular reference, was "sufficient lounging area for the men to read and otherwise amuse themselves in their leisure time, and adequate lighting and seating in such room accommodations."

In the opinion of the committee, the advantages to be derived through the proper housing of the track forces depend on the circumstances under which the housing is done, but in general, they are in whole or in part as follows:

"Permit the organization and maintenance of large mobile gangs for specialized work, with minimum defections from service. Meet the need brought about by adequate housing facilities along the line. Present a valuable inducement to employment in times of labor shortage. Generally attract a higher class of labor and reduce labor turnover, both of which affect favorably the efficiency of work organizations. Add to the general welfare of employees who cannot find or afford equally satisfactory housing facilities. Reduce the expense to the railroad for travel time of the men to and from the scene of work operation, and through the saving in loss of travel time, permit greater daily production. Make available large groups of men, on minimum notice, for emergency work. Tend to promote the safety of train operation and the protection of company property through the watchfulness of those employees about the railway when off duty."

Off-setting these possible advantages, the report said, are the cost of providing and maintaining company housing facilities, and the added responsibility placed upon supervisory officers for their general supervision and upkeep.

In concluding the report, the committee said that there are many factors today which demand or make desirable and economical the housing of at least a part of the track labor on most railways. Concerning the scope and furnishing of any housing facilities provided, it said that these factors depend to some extent upon the local conditions and upon the class and social habits of the labor to be housed, but that in all cases, the facilities should be maintained in a clean, safe and sanitary condition, with due consideration to the comfort and general welfare of the men. The report was accepted without discussion.

## Report on Maintenance of Rail Joints

Although design and quality of materials are highly important factors in the maintenance of rail joints, the committee on this subject, of which G. L. Sitton, chief engineer maintenance of way and structures, Eastern lines, Southern, was chairman, laid emphasis on the necessity for good workmanship and careful attention to details as basic requirements for satisfactory joint

maintenance. The report, an abstract of which follows, included a comprehensive discussion of design, manufacture and application of joints and their maintenance.

"The maintenance of rail joints is one of the trackman's major problems, for although joint bars themselves extend over only about 7 per cent of the length of a railroad, nearer 70 per cent of all work done on tracks affects the rail joints, either directly or indirectly.

"A very desirable feature in rail joint design is that the wave motion of the rail under traffic shall pass through the joint just as it does through the remainder of the rail. With such a joint there is no necessity for spacing joint ties. The present tendency in design is in this direction, but the desired end has not yet been realized.

"An important advance in joint design has been the toeless bar without joint spikes, for use with the heavier rail sections. The use of such joints, of course, requires that anchorage be provided by other means than by slot spiking. This not only relieves joints and bolts from anchorage stresses, but is easier on joint ties as they are not moved back and forth with the rail, and therefore remain solidly tamped longer.

"The effect on the maintenance of joints goes back to the manufacture of the rail itself. The less the variation in shape between individual rails, the less will be the expense of joint maintenance, because lack of uniformity causes wear to start sooner, owing to the uneven fit of the joint bars to the rail.

A notable advance in rail manufacture is the practice of end-hardening the rails at the mills. This will undoubtedly result in great savings in joint maintenance, and in rail maintenance as well. The ends of the rails should be chamfered about  $\frac{1}{16}$  in. on top, so that compressive stresses due to high temperature may be carried below the top portion of the head of the rail, and the danger of chipping be eliminated."

The report also contained an extensive discussion on the application and maintenance of rail joints, which stressed the necessity for good workmanship and careful attention to details, such as machine adzing, correct expansion allowance, the oiling of fishing surfaces, the proper tension in bolts, the use of spring washers, the application of anti-creepers and tie plates, the hardening and grinding of rail ends, and the desirability of surfacing the track promptly after new rail is laid. Other subjects discussed at length in this section of the report included the desirability of keeping bolts tight at all times to minimize wear between the several parts comprising the joint assembly, and the use of power wrenches in ordinary maintenance; protection against brine drippings; the use of crowned bars and rail-joint shims to compensate for wear on the fishing surfaces; welding, both to restore the running surface of the rail and to compensate for wear on the fishing surfaces; and the sawing of rail when wear on the fishing surfaces of the rail itself becomes so pronounced that none of the methods described is able to restore the joint to condition for further use. An abstract of that part of the report relating to butt welding follows:

"There are two separate purposes behind the butt-welding of rails, namely, the elimination of joints which are difficult to maintain, such as in street and highway crossings, passenger landings, tunnels, etc., and the continuous welding of rail for the purpose of eliminating all except insulated joints. The practice of butt-welding rails in crossings, tunnels, and passenger landings has been in effect for a number of years and a number of fairly long stretches of track in streets have been continuously welded for some time. This work has, generally, been successful.

"The continuous welding of long stretches of track, for the purpose of eliminating joints, is quite a different problem from that of eliminating individual joints, or limited numbers of joints in crossings, tunnels, etc. In this case, in order to prove successful, the welds must be as strong as the rail, and there must be no damage to the adjoining metal in the rails. Notable installations of continuous welding have been made by the Delaware & Hudson and by the Bessemer & Lake Erie."

### Discussion

Discussion of this report disclosed a difference of opinion with regard to the value or necessity of chamfering rail ends in view of the enlarged gap which this places at rail joints, and likewise, a difference of opinion as to when the chamfering should be done. Some speakers favored carrying out the work immediately after the rail is laid, while others preferred delaying it until the rail has been subject to considerable traffic. Attention was directed also to the types of track construction in which the rail is anchored to every tie. Where this is the case, it was contended, rail can be laid with little allowance for expansion without fear of any objectionable consequences.

## Operation of Motor Cars to Avoid Accidents

The speeding up of train schedules to meet public demand for faster transportation and the widespread use of motor cars "as an effective aid in reducing costs in the maintenance of way departments," have made the "safe operation of motor cars of special importance at this time," according to a report on the Operation of Motor Cars to Avoid Accidents, which was presented by a committee of which A. H. Peterson, roadmaster, Chicago, Milwaukee, St. Paul & Pacific, was chairman. After referring to the trend of motor-car accidents in recent years and pointing out that little progress has been made in reducing the number of such accidents since 1930, the report of this committee entered into a detailed discussion of ways and means of preventing accidents involving motor cars. This subject matter was grouped under three general classifications, namely, (1) the human element, (2) operating conditions, and (3) the motor car.

Under the first classification the requisite qualifications of competent motor car operators were set forth and it was added that "it is more essential that they be men of good judgment and the desired degree of dependability than that their physical attributes be of the best." Recommending that only one man should be in charge of the motor car, the report pointed out that where several men are entrusted to its care or operation "no one becomes adept and there is no actual feeling of responsibility on the part of any one." Above all, it said, the supervisory officers "must bring the lesson of caution to every man who rides a motor car."

Considerable space was devoted to a discussion of train lineups and the following instructions were offered:

"Before starting the day's work, the foreman or motor car operator should secure a written lineup of all trains affecting the safety of his motor car movement for the succeeding hour. This may be procured from the agent, telegraph operator or dispatcher, providing that such information can be obtained without calling the agent or operator before or after assigned hours of service. After receiving the lineup in writing, the operator of the



motor car must read it aloud to all persons on the car. It must be understood that this lineup is not to be relied upon as absolute, but is to be regarded only as an added precaution. The motor car must be operated upon the assumption that a train may be expected from either direction, regardless of the lineup."

It was further recommended that, to promote safety and fix the responsibility for accidents, the dispatcher should make a record in his train order book of each lineup given to a motor car operator, and that before issuing a running order to an extra train during the time that trackmen are working, the train dispatcher should examine his record of lineups for that day. If the extra is not shown in all lineups given, the train crew of the extra should be so advised.

Pointing out that "speed or a combination of speed with various other factors leads to many derailments annually," the report offered the following suggestions as a basis for regulating speed: "Most roads agree that twenty miles per hour is permissible on tangent track and around light curves in daytime. Ten miles per hour is the maximum fixed during stormy or cloudy weather, around sharp curves, over frogs, railroad crossings, over high or long bridges and trestles, through tunnels and through cities and towns where the track is not elevated or depressed." At the same time the report cautioned that "speed must depend on many factors aside from these," and that great care must be exercised while operating motor cars through remote control switches.

It was recommended that regular drills be held in setting the car on the track and particularly in setting it off quickly and the suggestion was made that the use of a stop watch during the drills "will bring surprising results." Among other points discussed were the mowing of weeds along the right-of-way to increase visibility at crossings; the cleaning of scrap material from the right-of-way to preclude the possibility of its being placed on the rails by trespassers; the necessity of keeping flangeways clean at highway crossings; the proper loading of materials and tools on motor cars; the proper use of trailers and push cars; the correct method of cranking motor-car engines; the need for inspecting cars carefully before they are used; the proper seating of passengers on cars; the operation of cars in double track territory; the use of flagmen when cars are heavily loaded; the proper design and use of set-offs; and the procedure to be followed when passing grade crossings.

Stating that "operating conditions are so variable that it is not possible to attempt an enumeration of them all," the report discussed the effect on the safety of motor-car operation on sharp curves, weather conditions, steep grades, and single track as compared with multiple track lines, adding that "common sense and good judgment are the most essential safeguards." Mention was made that one eastern road is experimenting with motor trucks operated over the highways in place of track motor cars, "due largely to traffic density and the danger of motor car accidents."

Under the third classification, the motor car, the report pointed out that "motor cars of today are greatly improved in every respect," and discussed some of the improvements that contribute to safe operation, such as extension lifting handles, wheel guards, deep tool trays, four-wheel brakes, safety railings, rail sweeps, easily-accessible controls and headlights. As to windshields it was contended that "under no circumstance should they be constructed of glass, this for obvious reasons." Among other things this portion of the report mentioned portable telephones as "an important safety item where lineups cannot be secured from agents and telegraph operators," the use of warning devices, the hous-

ing of motor cars, and the need for a general overhauling of each motor car periodically.

In conclusion the report, referring to the fact that "maintenance of way men have come to regard the motor car as indispensable to their work," urged them to "take the Frankenstein out of its operation and to make every motor car not only a useful tool but more important still, an instrument of safety."

### Discussion

During the discussion of this report some difference of opinion became manifest concerning the committee's recommendation that the use of glass in windshields be avoided. Some of those present supported the committee's view while others contended that the hazard involved, if any, particularly where shatterproof glass is used, is outweighed by the advantages of having a clear opening in the windshield. It was also brought out that there is some question as to what procedure should be followed when the draw-bars of motor cars and push cars or trailers are not of the same elevation, and as to what constitutes the best material for facing brake shoes.

### Good Workmanship in Laying Rail

While the laying of rail has been frequently discussed at conventions of this association, reports and papers on this subject have been addressed primarily to methods, appliances and gang organization that insure maximum economy in getting the work done. This year, however, a committee report on rail laying, presented by Chairman L. E. Thornton, assistant engineer on the Alton, was devoted to measures that insure a high quality of workmanship, or as stated by the committee, "that the rail is laid in such a manner as will assure its giving the maximum service with minimum maintenance expense."

The report stressed the importance of distributing rail in groups according to mill classification, and explained the significance of blue, yellow, green, white, brown and unpainted rail ends. It also urged care in unloading to avoid injury, adding that "to secure best results, any type of mechanical unloader is satisfactory which will remove the rail from the car in a fast, economical and workmanlike manner, and lay, not drop, it alongside of and convenient to the track to be relaid."

After pointing to the need for plugging old spike holes, the report set forth the requisites for good workmanship in machine adzing, urging that the "best men available" be assigned to the power adzers. Attention was directed to the need for proper adjustment to insure that the machines cut a level surface at all times and especially that "the position of the cutting heads of the adzing machines be adjusted each time the relay changes sides and periodical checks be made during the day to be sure that the cutting head is operating on a level plane." The committee also recommended the application of creosote to adzed surfaces.

The report advocated that rail ends be cleaned before applying the joint bars, and the application of oil to prevent frozen joints and insure better seating of the bars was recommended. The committee also urged care to insure that the correct expansion shims are used and cited rules governing this practice. Attention was directed to the need for the prompt application of all joint bolts, tightened to uniform tension.

With respect to the subsequent operations, particular stress was placed on accuracy in the position of tie plates and refinement in gaging, pointing out various faults



more commonly observed in this work and means of avoiding them. Under the heading of rail anchors, the committee said, "No trains should be permitted to run over new rail until a sufficient number of rail anchors have been applied to reduce creepage to the absolute minimum. Creepage must be studied carefully and a sufficient number of anchors applied to combat each individual case, being careful that both rails are anchored at the same time to prevent them from sluing."

In the opinion of the committee good workmanship in rail laying embraces out-of-face surfacing of the track immediately after the new rail is in place. The committee summarized its report as follows:

1. Sort rail properly as to classification and carbon content and distribute accordingly.
2. Unload rail properly and under no circumstances drop it while unloading.
3. Maintain proper stagger of joints.
4. Adze all ties deep enough to remove all decayed wood and so that the adzed surface is level and wide enough to seat the tie plates fully.
5. Apply anti-creepers at the time the rail is being laid.
6. Check rail temperature carefully and use expansion shims accordingly.
7. See that the rail is full bolted and spiked at the end of each day's work.
8. Watch the gage carefully and see that standard gage is maintained.
9. Surface track immediately after the rail is laid.
10. Provide proper permanent connections and run-offs after the job has been completed.

It is good practice to stress quality of workmanship rather than mileage of work turned out per day. Rail that is properly laid in accordance with the factors enumerated above will last better and be more economical in the long run.

### Discussion

Discussion of this report dealt largely with the placing of short and 1-A rails in curves, general opinion being opposed to the committee's recommendation to this effect. In considering the creepage of rail, numerous cases were cited of rail creeping in the direction opposite that of traffic that pointed to the desirability of placing anti-creepers to resist this movement. The time for the removal of expansion shims was also discussed at length, the consensus being that they should be removed as quickly as possible after the joints are bolted.

## The Trackman's Part in Safety at Highway Crossings

In introducing the report of the Committee on the Trackman's Responsibility for the Safety of Highway Crossings, E. J. Brown, roadmaster, Chicago, Burlington & Quincy, reviewed the progress that has been made in grade separation and directed attention to the remote possibility of the elimination of all of the many crossings, "with which the trackman must contend in the best possible manner." In the opinion of the committee the first requisite for the safe passage of highway vehicles over these crossings is a smooth surface on the approaches as well as the crossing itself. Rough pavement requires the motorist to watch the roadway and distracts his attention from approaching trains. This condition is aggravated where two or more tracks are crossed and one track is lower than the other.

Because highway crossing construction had been the subject of a detailed report at an earlier convention, the present report was confined on this phase of the subject to matters affecting the use of the crossings. For

example, the committee pointed to the fact that certain types of crossings become slippery during wet and freezing weather and suggested that this be overcome by having cinders or sand at hand to correct this condition.

Reference was made also to the hazard imposed by loose planks and protruding spikes. Trackmen were cautioned to make a careful inspection of flangeways to see that they are free from obstructions, especially in rural districts where roads are dragged. During winter months ice or snow accumulates in flangeways and if the section foreman is not alert to clean it out a derailment is likely to occur.

With respect to approaches, the committee called attention to the advantage of a level or nearly level grade for a distance sufficient to permit a truck or bus to stop on a grade on which it can start without too much effort because, aside from the possibility of stalling a heavy vehicle on the track in shifting gears, the driver may be tempted to approach the crossing at too high a rate of speed if the approach on either side is not fairly level. Rough approaches, or approaches embracing sharp turns, were also cited as a source of hazard and the committee pointed to the need of applying cinders or sand to steep approaches whenever they become icy.

Taking up the matter of sight distance at crossings, the report stressed the importance of eliminating all removable obstructions to the view of the tracks from the street or highway. It recommended that section foremen request adjacent property owners along the railroad to trim hedges and trees or give consent to have them removed.

Signs and signals were dismissed with a plea for standardization and the avoidance of surplus signs. While trackmen are not ordinarily responsible for the maintenance of signals or gates, the committee urged that they observe the operation of these devices and report failures promptly. The lighting of crossings was suggested as a means of increasing safety at crossings.

Turning to the subject of gatemen and watchmen, the committee stressed the importance of employing competent men. Whereas it was formerly the custom to assign old men to these positions, the committee feels that it is now essential to employ able-bodied and alert men, not only for their own safety but to insure that they may meet emergencies quickly. Emphasis was also placed on the posting of rules for the protection of crossings and on frequent checks of gatemen and watchmen to insure that the rules are obeyed.

### Discussion

In the discussion it was pointed out that education of the motoring public, careful supervision of crossing watchmen and extra watchmen at crossings during periods of unusually heavy traffic, were essential factors in promoting safety at grade crossings. The value of track-circuit annunciators to give watchmen advance warning of approaching trains was also pointed out, and several members spoke of the importance of adequate expansion allowance between concrete highway slabs and the track at crossings, to prevent expansion of the slabs from throwing the track out of line.

## The Track Supply Exhibit

Fifty-three manufacturers of equipment and materials used in the construction and maintenance of track presented exhibits of their products under the auspices of the Track Supply Association at the Hotel Stevens, Chicago, on September 14-16, co-incident with the conven-

tion of the Roadmasters and Maintenance of Way Association. The number of exhibitors this year compared with 45 in 1936 and 40 in 1935.

The officers of the Track Supply Association who were responsible for the preparation and conduct of the exhibits were: President, H. H. Talboys, Nordberg Manufacturing Company, Milwaukee, Wis.; vice-presidents, Jess Mossgrove, Austin-Western Road Machinery Company, Aurora, Ill., and Lem Adams, Oxweld Railroad Service Company, Chicago; secretary-treasurer, Dan J. Higgins, Gardener-Denver Company, Chicago; directors, Frank J. Reagan, American Fork & Hoe Company, Chicago; Lewis Thomas, Q. & C. Company, Chicago; R. J. Platt, Positive Rail Anchor Company, Chicago; R. J. McComb, Woodings-Verona Tool Works, Chicago; J. E. Mahoney, P. & M. Company, Chicago; F. W. Anderson, Northwestern Motor Company, Eau Claire, Wis.; and E. C. Argust, Morden Frog & Crossing Works, Chicago.

In the election of officers Mr. Mossgrove was advanced to president and Mr. Adams to first vice-president. Mr. McComb was elected second vice-president, and Mr. Thomas was elected secretary-treasurer. Ross M. Blackburn, Buda Company, Chicago; Howard C. Mull, Warren Tool Corporation, Warren, Ohio; and H. M. McFarlane, O. F. Jordan Company, East Chicago, Ind., were elected directors.

The list of exhibits, together with the materials on exhibit and the names of their representatives, follows:

Air Reduction Sales Company, New York; welding and cutting equipment; oxygen and acetylene regulators; carbide lights, lamps and lanterns; carbide; welding rods; goggles; and built-up and heat-treated rail joints; C. B. Armstrong, A. W. Brown, C. A. Daley, J. T. Gillespie, J. W. Kenefic, L. C. McDowell, U. F. Portel, H. L. Rogers, E. F. Turner, M. M. Weist, and D. J. Williams.

American Fork & Hoe Company, Cleveland, Ohio; rail anchor, tapered rail-joint shims, shovels, weed cutters, forks, rakes, scuffle hoes, and broom rakes; H. C. Branahl, G. L. Dunn, S. L. Henderson, J. J. Nolan, Frank J. Reagan, and F. C. Stowell.

American Hoist & Derrick Company, St. Paul, Minn.; photographs of work equipment; Stanley M. Hunter, Ward B. Maurer, and Harold O. Washburn.

Austin-Western Road Machinery Company, Aurora, Ill.; models and moving pictures and literature on air dump cars and power shovels; H. F. Barrows, J. D. Benbow, H. B. Bushnell, Jess Mossgrove, Bruce P. Smith, and A. O. Teckmeyer.

Barco Manufacturing Company, Chicago; gasoline tie tampers, stoves, sand dryers, flexible ball joints, and gasoline hammer; C. E. Allen, F. N. Bard, W. J. Belhke, C. O. Jenista, L. J. Lytle, and C. L. Mellor.

Buda Company, Harvey, Ill.; section motor car, inspection motor car, one-man inspection motor car, mechanical tie tamper, electric tie tamper, switch stand, bonding drill, track drill, track liners, rail bender, journal jacks, track jacks, tool grinder, and tie spacers; R. M. Blackburn, H. S. Brown, R. B. Fisher, F. L. Gormley, G. W. Hoover, and G. A. Secor.

Carborundum Company, Niagara Falls, N. Y.; grinding wheels and blocks for trackwork, literature on grinding and special wheels; R. C. Brandbury, H. C. Jones, R. A. Kindig, and B. H. Work.

Caterpillar Tractor Company, Peoria, Ill.; pictures of Caterpillar tractors; G. A. W. Bell, Jr., Ralph Dunn, Reid Evans, J. H. Fitzgerald, Eugene Larsen, and Ralph Schiesswohl.

Chicago Pneumatic Tool Company, New York; air compressor, tie tampers, and pneumatic tools; D. Brown, C. L. Butler, P. J. Christie, G. Coffey, S. J. Congdon, H. R. Deubel, W. J. Pallowick, and W. L. Stockwell.

Chisman Chemical Company, Inc., Bound Brook, N. J.; C. M. Burpee, M. Larsen, N. J. Leavitt, J. Murawski, and I. J. Strain.

Creepcheck Company, Inc., Chicago; rail anchors; T. D. Crowley, R. R. Dinklage, and U. A. Howell.

Crerar, Adams & Co., Chicago; track and bonding drills, track tools, tie bander, wrenches, rust-proof paint, hydraulic pipe pushers, and conduit bender; T. D. Lewis, Edward C. Poehler, Irving E. Poehler, J. M. Temple, Thomas F. Tough, and Louis K. Wietz.

Crown Rock Sales Company, Chicago; asphalt paving material; William T. Damewood, E. B. Marshall, and J. T. McDonough.

Cullen-Friedstedt Company, Chicago; motion pictures of locomotive crane in operation, and rail tongs; W. C. Bamber, K. J. Beller, L. B. Bertaux, C. J. Bronez, E. V. Cullen, F. J. Cullen, F. P. Cullen, T. G. Frazee, G. H. Goodell, Robert W. Jamison, F. L. Kendig, and Jos. F. Leonard.

Duff-Norton Manufacturing Company, Pittsburgh, Pa.; track jacks, power jacks, journal jacks, automatic lowering jacks, and tie spacers; C. N. Thulin and E. E. Thulin.

Elastic Spike Corporation, New York; elastic rail spikes; William A. Fisher, A. C. Jack, and B. Kuckuck.

Electric Tamper & Equipment Company, Ludington, Mich.; tie tamper, ballasting and discing blades and tips, and concrete vibrator; H. W. Cutshell, A. V. Gibbs, F. E. Gilbert, Ray Johnson, E. R. Mason, A. H. Nelson, Lowell S. Osborn, L. W. Swett, and G. L. Walters.

Fairmont Railway Motors, Inc., Fairmont, Minn.; inspection car, section car, and heavy-duty motor car; George Adams, C. P. Benning, W. D. Brooks, Kenneth Cavins, W. G. Day, Arthur R. Fletcher, C. H. Johnson, W. F. Kasper, J. T. McMahon, V. Pagett, W. H. Ripken, J. E. Simkins, H. A. Sly, and William Williamson.

Hayes Track Appliance Company, Richmond, Ind.; bumping posts, wheel stops, and portable derail; S. W. Hayes, Herbert J. Mayer, and Paul C. McClure.

Hubbard & Co., Pittsburgh, Pa.; track tools, alloy track chisels, spike mauls, sledges, picks, wrenches, claw bars, adzes, and alloy spring washers; D. J. Crowley and J. S. Wincrantz.

Illinois Malleable Iron Company, Railroad Division, Chicago; rail anchors; Chas. G. Ericson and H. A. Morgan.

Ingersoll-Rand Company, New York; pneumatic tie tampers, track wrench, rail drill, spike driver, screw-spike wrench, clamp-bolt wrench, and impact wrench; W. H. Armstrong, G. E. Bridge, G. W. Morrow, K. I. Thompson, and T. H. Weigand.

International Harvester Company, Chicago; tractor and Diesel power plant; W. J. Banks, R. C. Flordin, W. F. Hebard, W. Hensel, Neal Higgins, D. F. Hipskind, D. Jones, R. L. Knudsen, Wm. Parrish, A. W. Turner, and L. W. Warfel.

Jordan Company, O. F., East Chicago, Ind.; model and pictures of spreader ditcher; A. W. Banton, O. L. Champion, J. C. Forbes, and H. M. McFarlane.

Kalamazoo Railway Supply Company, Kalamazoo, Mich.; one-man inspection car, light section motor car, signal maintainer car, motor-car wheels, and track gage and level; L. W. Bates, Ralph E. Keller, Frank E. McAllister, and P. J. Robischung.

Lundie Engineering Corporation, New York; tie plates and tie tongs; L. B. Armstrong, D. H. Mayer, and O. W. Youngquist.

Maintenance Equipment Company, Chicago; switch point protector, rail and flange lubricator, derail, and literature on rail layer; D. M. Clarke, E. Overmier, T. E. Rodman, R. J. Shanahan, and P. A. Wells.

Mall Tool Company, Chicago; portable rail grinders, flexible-shaft cross-grinder, concrete vibrator, sump pump, 10-in. power saw, chain timber saw, lag-screw wrench, boring attachment, and concrete rubber; J. Innes, A. W. Mall, F. A. McGonigle, and M. Rhenquist.

Metal & Thermit Corporation, New York; thermit-pressure rail welds and welding rods; A. Lucas and C. D. Young.

Morden Frog & Crossing Works, Chicago; heat-treated forged compromise points, adjustable rail braces; and miscellaneous forged fittings for switches; E. C. Argust, W. Homer Hartz, G. F. Killmer, L. I. Martin, and Saw Withrow.

Nordberg Manufacturing Company, Milwaukee, Wis.; rail grinders, track power drill, power track wrench, utility rail grinders, and accessories; C. P. Clemmens, W. W. Fitzpatrick, C. K. Jensch, and H. H. Talboys.

Northwestern Motor Company, Eau Claire, Wis.; hump and extra-gang car, section and inspection motor cars, motor car wheels, and rail and frog surface grinder; F. W. Anderson, R. G. Clark, M. Dilley, Otis B. Duncan, G. H. Goodell, W. N. Jeffress, W. B. Joyce, A. H. Nelson, H. N. Nordlie, G. Prest, W. J. Roehl, J. Roehl, Jr., and J. S. White.

Oxweld Railroad Service Company, Chicago; oxy-acetylene welding and cutting apparatus, oxygen, acetylene, carbide, actual examples of battered joint reconditioning, rail butt welding, angle bar welding, switch point welding, frog welding, application of switch point protectors, and heat-treating of rail ends; Lem Adams, M. Burnett, Jr., W. E. Campbell, W. E. Donalds, S. P. Donegan, F. J. Duffie, A. F. Garberding, J. R. Garrett, W. A. Hogan, P. Hunter, Jr., W. H. Kofmehl, D. H. Pittman, C. E. Rigby, L. C. Ryan, J. C. Stephenson, F. C. Teichen, and J. E. Winslow.

P & M Company, Chicago; rail anti-creeper and bond-wire protectors, and tie plate assemblies; S. M. Clancey, D. M. Clarke, J. J. Gallagher, D. T. Hallberg, P. Hamilton, G. E. Johnson, I. E. Mahoney, W. A. Maxwell, G. E. Olson, W. H. Feaves, Max K. Ruppert, F. S. Schwinn, Jr., G. E. Webster and G. T. Willard.

Pettibone Mulliken Corporation, Chicago; mechanical switchman, switch stands, switch point lock, model of railroad crossing; J. H. Asselin, Walter Brietzke, A. R. Hearl, C. A. Johnson, Carl Landberg, G. R. Lyman, J. D. Potts, and G. J. Sibeck.

Pocket List of Railroad Officials, New York; Copies of Pocket List of Railroad Officials; H. A. Brown and B. J. Wilson.

Positive Rail Anchor Company, Chicago; rail anchors, guard-rail plates and braces, and adjustable rail braces; L. C. Ferguson and R. J. Platt.

Power Ballaster Company, Chicago; photographs and motion pictures of power ballaster and cribbing machine; Vic Coble and F. H. Philbrick.

Q & C Company, New York; guard-rail clamp, switch-point guard, electric snow melter, compromise joints, derail, gaging tools, rail and flange lubricator, wheel stops, rail tongs, and gage rods; G. H. Goodell, L. E. Hassman, E. I. Hetsch, G. Prest, J. L. Terry, Lewis Thomas, and C. H. Wilson.

Railway Age, Chicago; copies of Railway Engineering and Maintenance and Railway Age; G. E. Boyd, M. H. Dick, L. R. Gurley, S. W. Hickey, N. D. Howard, Elmer T. Howson, F. C. Koch, Walter S. Lacher, J. G. Little, H. E. McCandless, and H. A. Morrison.

Rails Company, The, New Haven, Conn.; M. & L. track, compression track construction, compression screw spike, full throated cut spike, oil gas and electric switch heaters, and track lubricator; L. T. Burwell, G. M. Hogan, and J. V. Wescott.

Rail Joint Company, Inc., The, New York; insulated rail joints, standard joints, controlled bearing joints, compromise joints, and fibre insulation; E. W. Backes, Alex Chapman, W. E. Gadd, Harry C. Hickey, G. H. Larson, J. N. Meade, R. W. Payne, and Thomas Ryan.

Railway Track-Work Company, Philadelphia, Pa.; portable electric track grinders, portable stock-rail grinder, portable reciprocating grinder, portable flexible shaft grinder, and grinding wheels; H. M. Moorhead and A. M. Nardini.

Ramapo Ajax Corporation, New York; switch stands, rail lubricators, and metal highway crossings; W. Bender, W. M. Brooks, G. A. Carlson, G. M. Cooper, R. E. Einstein, H. Hazelton, A. F. Hess, Darcy F. Hilton, P. Hoffman, A. F. Huber, J. S. Hutchins, W. Janicki, S. A. McVickers, and W. Perdue.

Rawls Company, S. E., Streator, Ill.; railway track and right-of-way mowing equipment; C. F. Butts, L. C. Meskimen, and S. E. Rawls.

deSanno & Son, A. P., Philadelphia, Pa.; grinding wheels; L. E. Buckingham, J. C. Rinehart, E. J. Rohan, and W. K. Whelan.

Sellers Manufacturing Company, Chicago; angle bars; J. T. Flynn and G. M. Hogan.

Standard Equipments, Inc., New York; rail joints; C. O. Bradshaw and Albert E. Hill.

Teleweld, Inc., Chicago; rail joint shims, samples of welded rails showing effects of pre-heating samples of heat-treated rail and field hardness testing kit, and welded manganese frog; T. L. Botman, G. A. Green, A. L. LaMasters, E. J. Payton, and W. A. Peck.

Templeton, Kenly & Co., Ltd., Chicago; track bridge and journal jacks, tie spacer, and rail puller and expander; E. D. Carthy, W. C. Cornu, H. C. Dilszian, R. B. Hill, P. H. McManus, Charles Neher, William Simpson, J. B. Templeton, and W. B. Templeton.

Western Railroad Supply Company, Chicago; dragging equipment detectors, crossing gate and flashing light signal, rail bonding machine, snow burner, electrical lighted switch lamps, reflector buttons and signs, and rail bonds; Norman Gort, John Hensel, and W. A. Swonger.

Woodings-Verona Tool Works and Woodings Forge & Tool Company, Verona, Pa.; rail anchors, gaging tools, spring-clip and bent-shoulder tie plates, spring washers, and triplex springs; James McComb, R. J. McComb, G. L. McKewin, J. M. Moore, E. Woodings, and W. H. Woodings.

Wooley Machine Company, Minneapolis, Minn.; track motor car, tie cutting machine, and inspection motor car; A. J. Franke, J. W. Vogler, and H. E. Wooley.



# Freight Forwarders Should Discard Shipper Role

Examiner finds that proper co-ordination requires their functioning like express companies—Cites abuses in present set-up

WASHINGTON, D. C.

**P**ROPER co-ordination of forwarder operations with railway service "is not to be found in the forwarder appearing in the transportation arena as a shipper of freight but as a common carrier transportation agency . . . essentially as an express company" regulated under Part I of the Interstate Commerce Act, according to the view expressed by Examiner R. N. Trezise in his proposed report in the Interstate Commerce Commission's freight forwarding investigation. Railroad control of forwarding companies under the present set-up is condemned as unlawful.

The report, made public September 21, occupies, with its appendices, 213 mimeographed sheets and arrives at 32 recommended findings. The investigation (No. 27,365) was on the commission's own motion and hearings were held throughout the country with I. C. C. Attorneys William J. Walsh and Glenwood W. Rouse directing the presentation of evidence gathered in field investigations by members of the commission's staff. A notice accompanying the proposed report fixed November 1 as the last day for filing exceptions and November 15 for replies to exceptions; oral argument will be held before the commission at Washington, D. C., on December 1.

## 32 Recommended Findings

The 32 recommended findings are summarized in the report as follows:

1. Respondents' practice of leasing or otherwise assigning space in their facilities at inadequate rentals is tantamount to a refunding or remission from the published rates, in violation of sections 2 and 6 of the act; an undue preference to forwarders and undue prejudice against other shippers, in violation of section 3 of the act; and is inconsistent with honest, efficient and economical management as required by section 15(a) of the act; and also in violation of the Elkins Act.
2. Respondents' practice of leasing space in freight houses to forwarders for storage of freight at specific rentals while charging other shippers the published storage rates, found to be unjustly discriminatory, unduly preferential of forwarders, and unduly prejudicial against other shippers, and a departure from the published tariff rates for the storage of freight in violation of sections 2, 3, and 6 of the act.
3. Exceptions to rules 14, 24 and 34 of official classification published by some of respondents, which have been interpreted by them to permit the use of numerous cars to load integral parts of a carload shipment at the carload rate, afford a means of granting a service which represents wasteful transportation and a dissipation of the carriers' revenues, inconsistent with honest, efficient and economical management, as provided in section 15(a) and are unreasonable in violation of section 1 of the act. These exceptions should be canceled.
4. Respondents' practice of furnishing two smaller cars on an order for one larger car and permitting the two cars to be loaded and moved out in line-haul service on separate days found to be contrary to tariff provisions in violation of section 6 of the act.
5. Practices of assessing on compartment cars loaded at industry tracks rates applicable from team tracks, and charging compartment car rates on shipments loaded in box cars, found

contrary to the published tariffs and in violation of section 6 of the act.

6. Respondents' practice of loading and unloading carload shipments of forwarder traffic in the manner described herein accords an undue preference of forwarder traffic and an undue prejudice against other traffic in violation of section 3 of the act.

7. Loading and unloading of carload freight is a terminal service independent of actual transportation. Charges for such service that are less than the cost of performing the service condemned as an unreasonable and wasteful practice and a dissipation of the carriers' revenues in violation of section 1 and inconsistent with section 15(a) of the act.

8. Practice of New York Central Railroad Company of making allowances to Universal Carloading & Distributing Company for loading and unloading carload freight at 36th Street Station at New York, N. Y., and failing or refusing to make similar allowances to other shippers of similar traffic at the same station, found to be unduly preferential of Universal's traffic and unduly prejudicial against the traffic of other shippers in violation of section 3 of the act.

9. Practice of Texas & New Orleans Railroad Company of unloading forwarder traffic at a contract charge not authorized by tariff and failure to hold itself out by proper publication to perform like service for other carload shippers, found to unduly prefer forwarder traffic and unduly prejudice other carload traffic in violation of sections 3 and 6 of the act.

10. Practice of forwarders tendering inflammable articles devoid of markings or labels is not in accordance with regulations prescribed by the Commission under the Transportation of Explosives Act and is unlawful.

11. Practices which permit movement of forwarder traffic and release at destination without respondents having possession of shipping papers showing character of freight shipped, found unreasonable and unduly preferential of forwarder traffic, unduly prejudicial against other traffic and contrary to tariff provisions in violation of sections 1, 3, and 6 of the act.

12. Practice in Chicago district of holding or detaining empty cars beyond free time for loading by forwarders without the collection of demurrage charges, found contrary to governing tariff rules in violation of section 6 of the act.

13. Practice of permitting shipments to be billed to stop-off to complete loading and to partly unload at points which are off the direct route of movement from origin to final destination, without additional transportation charge therefor, found to be a means of granting a service which represents wasteful transportation and a dissipation of the carriers' revenues, and is unreasonable and unduly preferential of forwarder traffic and unduly prejudicial against other traffic in violation of sections 1 and 3, and inconsistent with section 15(a) of the act.

14. Respondents' practices of transferring of portions of carloads of freight at intermediate points for movement in separate cars to off-line stop-off points, represent wasteful services, a dissipation of revenues, and are unreasonable in violation of section 1 and inconsistent with section 15(a) of the act.

15. Failure to restrict application of all-commodity carload rates to prevent shipments of straight carloads of individual commodities rated higher than the all-commodity rates from being billed as part of merchandise shipments or consignments at the all-commodity rates is an unreasonable practice in violation of section 1 of the act. Reasonable practice should limit such shipments to 50 per cent of the higher-rated commodities.

16. Tariff provisions which permit shipments loaded in a car at one station and combined with the billing of another car into which freight is loaded at another station, applying the carload rate on the basis of a single shipment, are unreasonable and unduly preferential of forwarder traffic and unduly prejudicial



against other traffic, in violation of sections 1 and 3 of the act.

17. Tariff provisions which permit shipments made in multiple cars as single shipments to be split enroute, one car going to one destination and another car to some other destination, found unreasonable and unduly preferential of forwarder traffic and unduly prejudicial against other traffic in violation of sections 1 and 3 of the act.

18. Practice of Missouri-Kansas-Texas Railroad Company of Texas of permitting shipments made in multiple cars as single shipments to be split at Dallas, Tex., one car being placed for unloading at the Morgan warehouse at that point and another car at respondents' freight station, under the circumstances herein described, found to be in violation of rule 24 of consolidated classification and section 6 of the act.

19. Respondents' practices of according forwarders' shipments in carloads, passenger train services, special switching services, and other special services not afforded other shippers of like carload traffic, found unreasonable, unjustly discriminatory, unduly preferential of forwarder traffic and unduly prejudicial against other traffic in violation of sections 1, 2, and 3 of the act, and of the Elkins Act.

20. Practice of disregarding the routing of forwarder carload shipments from St. Louis, Mo., to Dallas, Tex., in order to expedite the movement thereof, and the payment to the Texas Electric Railway of a division of the St. Louis-Dallas rate under which the Missouri-Kansas-Texas performs the whole line-haul service, is uneconomical and is an unreasonable practice tending definitely to cast a burden upon other traffic in violation of section 1 and inconsistent with section 15(a) of the act.

21. Practice of advancing to the forwarder sums of money representing c.o.d. charges and other similar charges on shipments received at break-bulk points in interstate carloads and moved out in less-than-carload service to final destination is inconsistent with respondents' tariffs and is unlawful in violation of section 6 of the act.

22. Less-than-carload shipments from Shreveport, La., to points in Louisiana over the Louisiana & Arkansas Railway transferred from cars containing inbound interstate carload shipments, found to be interstate in character, and that the lawful tariff rates are not being collected on such shipments in violation of section 6 of the act.

23. Failure of respondents to collect freight charges from forwarders within the period of time and under the terms of section 3, paragraph 2 of the act, as modified by the Commission under authority of the provisions of said act, found unlawful.

24. Failure of respondents to render freight bills to forwarders within a reasonable time after delivery of freight, consistent with the nature of the traffic, found unduly preferential of forwarder traffic and unduly prejudicial against other traffic, in violation of section 3 of the act.

25. Abuses arising in connection with the solicitation of freight by the rail lines for forwarders operating on their lines are inevitable under the present patronizing practices of the rail lines toward the forwarders.

26. Forwarders' rates should be required to be filed with the Commission and observed in order to avoid undue preference and undue prejudice of shippers.

27. Practice of certain respondents of transporting through their owned or controlled forwarding companies less-than-carload shipments combined as carloads at carload rates, while directly transporting other less-than-carload shipments at the established less-than-carload rates, found to be unlawful in violation of section 6 of the act.

28. Practice of certain respondents acting as shippers through the operation of their owned or controlled forwarding companies and transporting shipments in interstate commerce in which they have an interest, direct or indirect, but which shipments are not used in the conduct of their business as a common carrier, found to be in violation of section 1(8) of the act.

29. The physical service performed by the forwarder when using the rail lines as a medium of transportation is substantially similar to the physical service performed by an express company, but the relation of the forwarder to the rail lines is that of a shipper while the relation of the express company is that of a common carrier.

30. The relation of the forwarder to the rail lines would be improved and better co-ordinated by the establishment of appropriate quantity rates and the forwarder acting as a common carrier transportation agency under Part I of the act in essentially the same manner as express companies, rather than assuming the role of a shipper as under the present arrangement.

31. Should the rail lines elect to establish or participate in quantity rates in connection with the forwarder the contract or divisional arrangement between the rail lines and forwarder should be filed with the Commission and approved before becoming effective. The Commission should be enabled to exercise authority to institute investigations as to the reasonableness of such arrangements and issue mandatory orders concerning

them, and if legislation is necessary to insure this authority it should be recommended.

32. Appropriate orders requiring removal of the unlawful situations should be entered.

### "Servile Attitude" of Railroads Brings Abuses

The report in the main is a detailed recital of various abuses which have developed because of the "servile attitude" of railroads toward the forwarder. With reference to regulation of the latter in its present shipper role, however, the examiner finds that the record "does not present any particular details as to the extent to which legislation would be necessary to obviate the abuses or problems that exist under the present law." Yet, he adds, "it is certain that there should be some regulation to prevent undue prejudice and undue preference of shippers. Forwarder rates should be filed with the commission and some requirement made for their observance."

Later on, in leading up to his suggestion that the forwarder should be brought under Part I of the Interstate Commerce Act as a transportation agency, Mr. Trezise expresses doubt whether any legislation "designed to regulate the forwarder as a shipper could be enacted to avoid abuses even more grave than those under the present law, except possibly to prevent discrimination. . . ." "At the rate of development in the last few years," he adds "it is conceivable that all merchandise freight, both carload and less-carload, may fall into the hands of the forwarders, and the rail lines become physical operating companies eking out an existence under depleted revenues awaiting a relatively short period for the total bankruptcy of our entire rail transportation system."

It is Mr. Trezise's view that the forwarder serves a useful purpose "in the absence of the same character of initiative on the part of the rail lines"; and he reminds the carriers of how former Co-ordinator Eastman "sought vainly a few years ago to assist the rail lines by recommending that they establish forwarding companies themselves." At another point the examiner suggests that "a different situation might exist today" if the railroads had "given the same consideration" to the establishment of less-than-carload rates to accommodate the class of traffic handled by forwarders "as they have to relaxing their rates, rules and practices to foster forwarder traffic."

### Law Should Permit Services by Railroads

Discussing "Railroads as Forwarders" the report recommends that, if necessary, existing laws should be modified "to enable the rail lines to handle this traffic or operate lawfully in conjunction with the freight forwarder in the role as a common carrier transportation agency." In this connection the examiner had previously found the record "substantially silent as to what particular patent the forwarder possesses that the rail lines cannot hope to obtain; why the rail lines may not perform a similar service, including pick-up and delivery of freight, and obtain the entire profit from the services; and why investments are so indelibly cast that they cannot be altered from a practical point of view to embrace the forwarder."

The report opens with a discussion of the corporate relations and operations of the three largest forwarders—Universal Carloading & Distributing Company, National Carloading Corporation and Acme Fast Freight, Inc. It finds that Universal "is linked to the New York Central by a chain of three intermediate organizations"; that National "is controlled jointly by the Chesapeake &

Ohio, Erie and Pere Marquette through owned subsidiaries . . . and a corporation whose capital stock is owned by those subsidiaries"; and that Acme is not a railroad affiliate, being controlled by its president, Thomas A. Bradley. While the report deals in the main with the relations of these three large forwarders with railroads, attention is called to the fact that the Baltimore & Ohio, through its subsidiary, the New York Transit & Terminal Company, Ltd., recently acquired a financial interest in the General Carloading Company.

Next comes an explanation of forwarder operations, a listing of the more important forwarder routes, and a discussion of "the spread"—that difference between carload and l.c.l. rates wherein the forwarder finds his profit. As an example of the latter it is pointed out that on New York-Chicago traffic the forwarder has a rate advantage over the railroads of 46 cents on first-class freight, 23 cents on second class, and no margin on third class; but the latter "is useful to load into cars which are partially filled with other tonnage."

### Trucks Get Up to Half of Forwarder Traffic

Forwarders decline to handle unprofitable traffic and ship between 35 and 50 per cent of all their tonnage by highway motor carrier, diverting freight from the railroads to the highways, but at the same time shipping by rail "some tonnage which would otherwise be handled by motor carriers." Forwarder tariff rates "are now generally adhered to, but on many occasions prior to April 1, 1936, rates lower than their regular schedules were quoted to large shippers and special concessions were made to hold competitive traffic." Testimony showed that payment of cash rebates "has not been sanctioned since the adoption of an N.R.A. code in 1933"; but, the examiner observes, "discriminations have not been terminated—the forwarders admit that they now discriminate as between localities and as between different types of merchandise in the same locality." Also, "a large amount of traffic has been diverted from the Railway Express Agency . . . since the rail carriers expedited their freight train service." Yet when the Express Agency proposed a reduced New York-San Francisco rate to hold some of the business, "controlling railroads disapproved" and the lower express schedule was not established.

The section of the report dealing with "Tariff Authorities" opens with the assertion that "various exceptions to the general rules applicable in connection with the shipment of carload traffic have been established by the rail lines to facilitate the peculiar method of shipment by the forwarder." These exceptions as employed by different railroads at different points are discussed in detail as the examiner leads up to his discussion of all-commodity rates which, while technically available to all shippers, "are adaptable especially to the use of freight forwarding companies." And, although these rates apply only on carload traffic, "the flexibility or latitude of the governing rules incident to their application renders them little different from less-than-carload rates when applied . . . to the traffic of the freight forwarding companies."

### Cheap Rents from Railroads

With reference to occupancy of railroad facilities by forwarders the record is said to show that generally the terms of such leases are indefinite. A total of 360 portions of space in railroad facilities were shown to be used or occupied by forwarders. "In some instances," the report adds, "the rental charge is not sufficient to cover the taxes, maintenance and operating expenses." And the record shows that "19 buildings have been con-

structed by respondents especially for use by forwarders. In one case the rental is not sufficient to meet the expenses incident to maintaining and operating the premises. In five instances the annual rentals yield but from a fraction of one per cent to three per cent on the I. C. C. value of the facilities." Yet there was railroad testimony to the effect that it is the usual practice to adjust rentals so as to net from six to 10 per cent. Thus the examiner finds that "the record clearly indicates that in many instances traffic considerations are uppermost and controlling in the minds of respondents' officials charged with the leasing of facilities to forwarders." Also, space leased to forwarders for storage of their traffic in the same freight houses as used to store ordinary freight "results in the forwarders paying a different rate for storage than other shippers."

On the subject of "Ordering and Furnishing Cars" the examiner discusses the devices whereby the forwarder gets the battery of cars for his daily loading requirements. These include the nominal order for a 50-ft. car with the understanding that two 40-ft. cars will be furnished; the placing for forwarders of refrigerator cars, baggage, milk and express cars. Then comes discussions of light loading of forwarder cars, of alleged violations of tariff rules covering shipments in compartment cars; of practices in connection with the loading and unloading of forwarder freight and the cost thereof to the railroads; and of various billing devices including those enabling the forwarder "to obtain a daily service in less-than-carload quantities at carload rates."

### "Development" of Stop-Off Idea

The chapter dealing with the stopping of cars in transit to complete loading or partially to unload, notes that this privilege has been available to shippers for many years, but adds that "the use of it by the forwarders extends far beyond the original concept of the stop-off arrangement." Here are cited various examples of such extension, including what the examiner calls the "constructive stop-off gesture." The latter may be explained with New York and Newark, N. J., as the examples. If a day's business offers enough traffic at Newark to make the carload minimum the forwarder's Newark car is billed out from that point. If on the other hand Newark offers less than a carload the forwarder agent there gets in touch with his New York associate and hooks up his car with New York billing, treating it as a stop-off car at Newark. The attitude of the carriers "toward the liberal or distorted use of these stop-off arrangements" is said to indicate "their tendency to ignore reasonable restrictions and accord the forwarders privileges under the stop-off provisions which result in unnecessary and wasteful practices." There follows similar discussions of forwarders' use of split origin and split delivery privileges, and of expedited train schedules and extensive switching services which the carriers accord to forwarders. In the latter connection it is asserted that "Any agreement between respondents and forwarders to expedite shipments under the established rates and tariff provisions was void as a discrimination, in violation of section 2 of the act." Also, it would be "a violation of the Elkins act making concessions unlawful."

The report next includes a section on "Railroad Transport Companies" wherein it discusses the activities of these carrier affiliates. Such companies, it is pointed out, are not a specific issue in the investigation, but it was nevertheless considered "significant to observe" that they are subject to the Interstate Commerce Act, independent of the Motor Carrier Act. Further discussion of these transport companies leads to the recommenda-



tion that the commission should find unlawful the practice of using them to advance money representing c. o. d. collections, etc., to forwarders.

### "Net" from Forwarder Traffic

The examiner presents detailed tonnage and revenue figures in leading up to his discussion of testimony offered by a forwarder witness to the effect that the railroads obtained higher net revenue from forwarder traffic than from almost any other class of carload traffic; and that they conduct their l.c.l. business at a loss. This witness, the examiner says, "resorted to many assumptions and failed to give consideration to the facts of record with respect to the liberal and expensive service accorded forwarder traffic." It is the examiner's view in this connection that "the earnings on forwarder traffic, either gross or purported net figures shown can not properly be compared with the earnings on other traffic because more service is performed under the rates applicable on the forwarder traffic. Any endeavor to compare railroad earnings on forwarder traffic with those on ordinary freight represents the futile effort of undertaking to compare unlike things."

Subsequent chapters deal in turn with the extension of credit to forwarders, railroad solicitation of freight for forwarders, the regulation of forwarders and railroads as forwarders, the latter two as noted previously.

In stating his conclusions Examiner Trezise cites the contention of counsel for one of the railroads that matters considered in the record fall within the realm of managerial discretion. Mr. Trezise thinks, however, that if such a conclusion be sound, investigations would be futile "as no remedy would be found to correct uneconomical practices that threaten the stability of our transportation system." And he later finds the significance of the investigation to be in its showing that "each individual railroad is constantly in jeopardy of losing its forwarder traffic to a competing railroad unless it allows or condones practices that appear economically unsound, legally questionable, or clearly unlawful."

### Rates to Meet Truck Competition

Mr. Trezise follows through on his suggestion that the forwarder should assume the role of a transportation agency under Part I of the Interstate Commerce Act with a discussion of a rate structure necessary to accommodate such a set-up. He finds the present record inadequate as a basis for outlining a complete plan, but suggests as an initial step a structure based on quantities "designed to meet quarter, one-half and whole truckloads, and have regard to some extent for cubical space occupied by these various classes of commodities." His suggestion, "merely in embryo form" is that rates to meet the situation be established on the following classes and quantities of freight:

Classes	Quantity Pounds	Quantity Pounds	Quantity Pounds
First .....	2,000	4,000	8,000
Second .....	3,000	6,000	12,000
Third .....	4,000	8,000	16,000
Fourth .....	5,000	10,000	20,000

With rates properly adjusted on these quantities the examiner thinks that the l.c.l. shipper "can ship in his own name and each shipper be treated alike. Furthermore, under such an arrangement, the rail lines might to some extent exercise their initiative rather than being controlled by a subservient attitude toward the forwarder for fear of losing traffic." "Naturally," he adds, "the rates should be determined in a manner to yield to the rail lines greater revenues than under the present relatively low rates for the service performed."

## I. C. Fire-Fighting

**A**S extra safeguards to freight and to roadside property, all switch engines and several road engines on the Illinois Central are now equipped to serve as fire-fighters at a moment's notice. This fire-engine fleet consists of 350 locomotives in service in terminals and other congested areas on the railroad.

Quickly available in railway yards and at locations along the tracks, these locomotives are expected to be an important factor in the reduction of fire hazards. No



A Fleet of 350 I. C. Locomotives Has Been Equipped with Fire-Fighting Apparatus

fire-plug is needed, as each locomotive carries its own supply of water. This adds to the speed with which, upon reaching a fire, it can get a stream of water into play.

Each locomotive carries a reel box containing 50 ft. of specially-treated cotton, rubber-lined hose, with a nozzle and necessary connection, all of which can be attached quickly. Normally the injector provides pressure for pumping water from the tender into the boiler, but when the fire-fighting apparatus is in action, most of the water is diverted into the fire-hose. A stream of water can be thrown 60 ft. at the rate of 100 gal. a minute. The tender on each locomotive has a capacity of from 8,000 to 10,000 gal. of water, so that under ordinary conditions the supply will last at least an hour.

Engine and train crews have learned how to handle the new equipment. Upon reaching a blaze, these volunteer fire-fighters remove the hose from the reel, attach it to the branch pipe from the pump and open the valve. A member of the engine crew directs the stream toward the fire. Fire-hose and nozzles are kept in good condition, and they are inspected regularly each month to make sure that the equipment will be ready for service when needed.



# Would Require Stokers On Big Locomotives

I. C. C. Examiner files proposed report which finds that their use is in the interests of economy and safety

WASHINGTON, D. C.

**E**XPRESSING the belief that the use of large hand-fired coal-burning steam locomotives in fast and heavy service causes unnecessary peril to the life and limb of travelers and employees on the railroads, Special Examiner Homer C. King of the Interstate Commerce Commission, in a proposed report to the commission, has recommended that it order the railroads of the country to equip approximately 3,500 of their remaining locomotives, used in through service, with automatic stokers. The case arose in 1930 upon the complaint of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen and was directed against all the railroads of the country, which are subject to the Interstate Commerce Act. Hearings were held in 1931, and were then suspended until 1936, when they were resumed and completed in the early part of 1937, in Washington.

The report states that while the complaint as originally filed included all coal-burning steam locomotives not mechanically fired, the complainants by a statement of record which was entered at almost the end of the hearings, withdrew their request for the installation of stokers on passenger locomotives weighing less than 125,000 pounds on driving wheels, and consuming less than an average of 1,800 pounds of coal per hour; and on freight and yard locomotives weighing less than 150,000 pounds on driving wheels, and consuming the same amount of coal as the passenger locomotives.

The proposed report, which covers 63 pages, begins with a discussion of the construction of fire-boxes in modern locomotives and states that prior to about 1900, all engines were hand fired. About this time stokers began to be experimented with and have been in constant use since that time. The report goes on to state that the firing of a locomotive cannot be done in a slipshod manner. "If the locomotive is to be efficiently fired," says the report, "the work cannot be performed haphazardly. Each scoopful, ordinarily weighing about 15 pounds, must be directed accurately to the parts of the fire which need replenishing, and fresh coal must not be thrown on coal which has not ignited." The writer of the report reaches the conclusion that the efficiency of a locomotive in fast and/or heavy service is greatly increased by the use of stokers. "The reasons," he says, "are readily apparent. It is essential in the successful operation of any locomotive that an adequate supply of steam be available. This supply must be constant and within a very few pounds of the working pressure of the boiler if the full power of the locomotive is to be developed. Present day speeds and tonnage ratings will admit of no lack of steam, and large locomotives operating under normal conditions are probably no more than, if as much as, 75 per cent efficient for sustained periods unless equipped with stokers. The record clearly shows that many large locomotives cannot be adequately supplied with fuel by hand firing when operated at their full capacity." He also points out that the use of stokers

is shown by the record to have eliminated the necessity of using two firemen, working jointly in maintaining steam pressure on many large locomotives in former years.

## Fire Blindness Discussed

The examiner then discusses the first complaint of the brotherhoods against hand firing, that of the effect of fire box glare on the eyesight of firemen. The complainants contended that the eyesight of firemen is affected by reason of the unnecessary intermittent exposure to the glare of the fire in the fire box. The brotherhoods produced numerous witnesses, who in general testified that after looking into the fire box they were temporarily "fire-blinded." The report says that it appears "that fire blindness lasts for a period of from a few seconds to approximately 30 seconds, and that while a man is fire-blinded he is unable to distinguish signals at night." The complainants also called a distinguished eye specialist to buttress their testimony. The specialist testified that the fire box glare adversely affects the vision of firemen, and that their eyes would not become immunized by long exposure to glare conditions.

The defendant railroads had employees testify that although they had experienced fire-blindness when they first went to work, it had had no permanent effects. They also brought to the stand "one of the most distinguished eye specialists in the entire country" who testified that he had made personal tests and experienced no difficulty in reading railroad signals immediately after looking into the fire box.

The examiner draws the conclusion that with respect to the effect of fire glare on the eyes, when men are first employed as firemen they ordinarily experience fire blindness of more or less severity, and because of this are sometimes prevented from promptly distinguishing signals. Despite the fact that men are sometimes temporarily blinded and are prevented from properly reading signals, the examiner does not believe that "the evidence with reference to this condition is of sufficient weight to require action by the commission in this proceeding."

The brotherhoods also contended in their case that the use of automatic stokers would decrease the dangers of an explosion in the fire box blowing back and injuring the firemen if he happened to be in front of the fire door. The examiner points out that the improved methods in the manufacture of steel for tubes, flues and sheets and better maintenance of these parts, with the universal use of automatic fire doors, has greatly lessened the danger of which the brotherhoods complain. He does not believe that the testimony regarding this danger is of great enough weight that the commission should take action to order the universal installation of automatic stokers.

Next comes a discussion of the dangers to the fireman of being constantly exposed to extreme heat and cold

during the Winter months. It is pointed out that in shoveling coal and being exposed to the heat of the fire box, the fireman perspires profusely. Then he has to get out of the cab and perform many duties in the open air such as filling the water tank from cranes or spouts at water stations, cleaning the ashpan, sometimes taking coal, often assisting the engineer in various ways around the locomotive, and sometimes assisting in making repairs while on the road. These sudden changes in temperature are clearly injurious to health. Despite conflicting testimony on this subject, the examiner says that "We do not attach undue importance to the medical testimony with respect to this particular contention but are rather guided by what we consider the common experience of men generally, and it is our conclusion that in many cases the firemen are unduly exposed to excessive changes in temperatures while engaged in hand firing, and that their health and general welfare over a period of time is unquestionably adversely affected." The examiner feels that the installation of automatic stokers would improve the health of the firemen and that in turn would tend for greater safety to railroad operation.

Another important contention of the railroad brotherhoods was that the use of hand-fired locomotives forced the firemen to spend more than half of his time firing the locomotive so that he could not maintain a lookout on his side of the engine as the railroad rules require. This, they contended, was a poor practice in that it endangered both the train crew and the passengers. On this point the examiner reaches the conclusion that "on the larger types of locomotives used in fast and heavy service an effective lookout cannot be maintained, nor a reasonable compliance with safety rules and practices secured when the locomotives are hand fired, whereas on such locomotives when equipped with stokers, the firemen are enabled to maintain an effective lookout, thus removing unnecessary peril to life or limb, and promoting safety to themselves, other employees, and travelers upon railroads."

Considerable space is given to the subject of exertion and fatigue of hand firing. The report asserts that "It has long been recognized that on hand-fired locomotives firemen undergo greater physical exertion than any other class of railroad operating employees. The record describes numerous runs on which 15 to 20 tons of coal were consumed, others requiring 20 to 25 tons, and some cases in which as many as 30 tons have been shoveled by firemen on a run. The witnesses for the brotherhoods who testified to shoveling these amounts of coal described themselves as being "almost near a state of physical exhaustion," "worn out mentally and physically," and "completely exhausted" after such trips. The record also shows that a number of men have collapsed from exhaustion while firing. The examiner believes that the use of stokers prevents excessive exertion and fatigue, and for that reason, can be classed as safety devices.

#### Number Now Equipped With Stokers

In tabulating the returns from a questionnaire which was sent to all the railroads and which involved 47,393 locomotives, the examiner points out that of this number, 8,154 were assigned to passenger service, 6,831 of them using coal as fuel. Of that number, 1,347 were equipped with stokers, the vast majority being used in through service. The average weight on the driving wheels of these locomotives equipped with stokers, was 209,000 pounds. The questionnaire also showed that all passenger locomotives weighing 250,000 pounds or more were equipped with stokers; of 1,018 weighing between

200,000 pounds and 250,000 pounds, 532, or slightly more than 50 per cent were so equipped; of 1,570 weighing between 170,000 and 200,000 pounds, 515, or approximately 33 per cent, were so equipped; and of the 4,064 which weighed less than 170,000 pounds, only 125 had stokers.

The questionnaire also discloses the fact that out of the 26,000 freight locomotives, about 21,000 used coal as fuel, and 10,160 were equipped with stokers. The average weight of the stoker equipped freight locomotive was found to be about 280,000 pounds.

After examining the various types and weights of locomotives used in both freight and passenger service, the examiner comes to the conclusion that all passenger locomotives weighing more than 170,000 pounds and all freight locomotives weighing more than 185,000 pounds should be equipped with automatic stokers. He goes on to say that the weight limits "are, if anything, too high," but he feels that they are "sufficiently high to avoid the possibility of including any locomotives which may be hand fired and operated without unnecessary peril to life or limb."

#### Cost of Installation

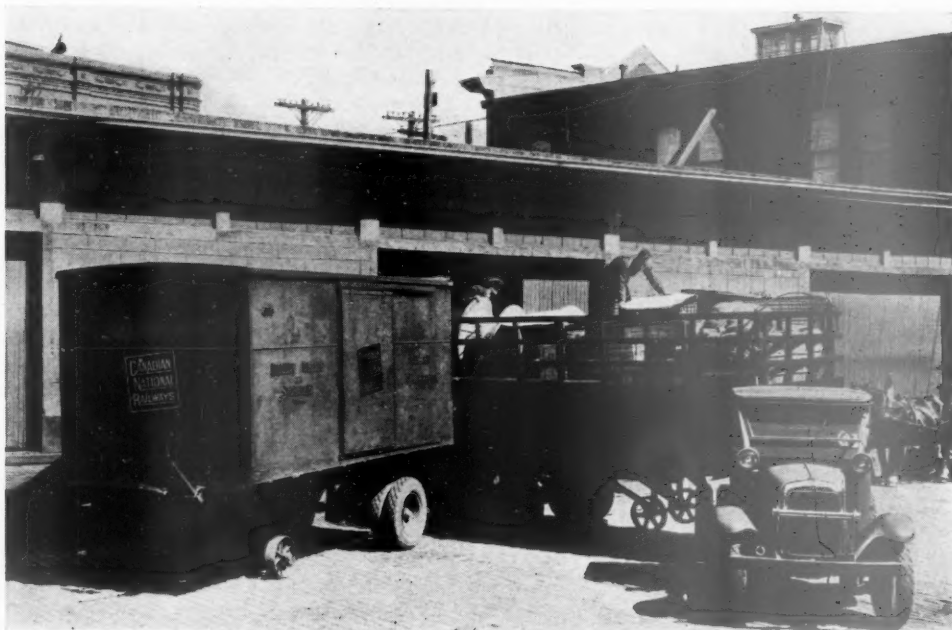
The final question to be discussed by the proposed report is that of the cost of the application of stokers. The railroads had alleged in their answer to the complaint that the cost of applying stokers to all locomotives would be approximately \$115,000,000. The examiner says the record shows that the cost of installing a stoker is around \$3,000. The returns from the commission's questionnaire shows that as of February 28, there were not more than 3,500 locomotives on which the application of stokers would be necessary in order to comply with the recommendations of the examiner. He estimates that the total cost of the installation should not be more than \$11,000,000. Since the cost of maintenance of the stoker is approximately one cent per mile, the examiner concludes that the application of stokers to the remaining 3,500 locomotives would be an economical move for the carriers in view of the fact that the railroads admit that the stoker provides for more efficient operation of the engine.

#### Conclusions

Examiner King would have the commission find that in order to prevent unnecessary peril to life or limb, and to promote the safety of employees and travelers upon railroads, no coal-burning steam locomotives built on or after April 1, 1938, which weigh 170,000 pounds or more on driving wheels, shall be used in through passenger service; and that no coal-burning steam locomotives built on or after that date, which weigh 185,000 pounds or more on driving wheels, shall be used in through freight, helper, or transfer service, as defined in this report, unless equipped with automatic stokers, or other mechanical means of supplying fuel to the fire; (2) that on and after April 1, 1938, no coal-burning steam locomotives of the respective weights on driving wheels above referred to, and used in the services above set forth, built prior to that date shall be used in said services after receiving class 3 repairs or heavier, subsequent to said date unless equipped with automatic stokers or other mechanical means of supplying fuel to the fire; (3) that on and after April 1, 1943, no locomotives of the respective weights on driving wheels above referred to shall be used in the services above set forth, unless equipped with automatic stokers, or other mechanical means of supplying fuel to the fire.

# Motor Transport Section

The Canadian National Is Rapidly Expanding Its Rail-Highway Co-Ordination



## Co-Ordinating Trucks and Trains In Canada

Similar competitive problems across the border are met by highway transportation

By W. E. Miller

Supervisor, Station Service, Canadian National

**T**HE development of co-ordination of transportation is one of the major problems of Canada today. This is particularly the case with regard to the railways, for the new, rapid and flexible method of highway transportation has brought about the necessity for great changes in railway functions. The railways fully realize this, since the revenues and the future well-being of their undertakings depend entirely upon the service they render and the public appreciation of it. Therefore, they are making every reasonable effort to meet the situation in full measure.

The outstanding authorities who have made exhaustive study of and inquiry into the solution of the problem and the highway truckers themselves are of the opinion that in order to put the trucking industry on a sound footing and to bring about complete co-ordination, proper regulation and control of highway trucking should be enacted with equality of conditions under which the two forms of transportation compete. It is

only in this way that automatic division of functions can be achieved and the economic advantages of each determined.

### The Scramble for Traffic

Today, there are approximately 75,000 commercial motor vehicles registered in the Province of Ontario alone. Not all, but a great many of these vehicles—in many cases running parallel to the railway tracks—are transporting freight, not only between the larger centers of population but also between these centers and the farming communities. These commercial vehicles, when added to our railway facilities, are creating a surplus of transportation which its producers cannot dispose of. Over-supply means idle transportation equipment, and a "scramble" for traffic among competing agencies, which inevitably results in lower rates with consequent lower return on the traffic available. No



transportation agency can long exist when it charges for its service an amount less than it expends to provide that service.

In 1936, the common carrier and contract truckers in Ontario transported approximately one and one-half million tons of merchandise traffic. This does not include traffic transported on owners' vehicles, nor does it include farm products, livestock, milk, household goods or low-grade commodities such as coal, brick, road materials, rough lumber, cement blocks, etc. Records do not indicate the tonnage figures for these latter classes of transport services.

A fair approximation, however, of the gross revenue produced, or the freight charges paid by the public, on the one and one-half million tons of merchandise freight which was transported by the common and contract truckers places it in the neighborhood of twelve million dollars. When we examine the matter in this manner and bear in mind the fact that the transport industry is admitted to be in an unhealthy financial condition, we must inevitably arrive at the conclusion that either the rates charged are less than it costs to produce the service or the business is not being conducted in a business-like manner, or both.

In all fairness, it must be stated that the present situation of the railways is in part due to the depressed conditions, but due also to a much greater degree to the ruinous rate-cutting competition of the transport industry, which competitor is proving equally disastrous to that industry itself. There are transport operators who are earnestly striving to conduct their business in a proper way, but these operators are in the minority, and they have the alternative of either meeting the competition of the rate chiseller or going out of business.

### False Economies

We must not, of course, overlook the fact that for many classes of traffic the motor truck is both more convenient and essentially more economical than the railway. That is, certain services of the railway which were essential during the last century are no longer indispensable, and it would be detrimental to the public interest and contrary to the law of economics arbitrarily to divert such traffic from the motor trucks back to the railway.

But, by the same rule of measurement, it is not only unwise, but productive of an unjustifiable waste to foster and encourage the handling of traffic by motor trucks where it can be transported more cheaply and just as conveniently by the railway. The only solution of the problem which will promote public welfare will be the effect of economically sound co-ordination between these forms of transportation whereby each form will handle that traffic which it can handle at the lowest cost, with due allowance for the quality and nature of the services.

### Transport Evils

Many of the provinces of Canada have enacted some legislation designed primarily to regulate highway transportation, but the legislation is in many particulars inadequate, and its enforcement ineffective. Perhaps the present situation in Ontario is more clearly summed up in the following words of the Automotive Transportation Association of Ontario, an association of highway transport operators—"The virtue which motor transportation has of requiring a relatively small investment per unit becomes, with lack of proper regulation, a vice. Too many people go into the trucking business for hire. Unbridled cut-throat competition follows, rates are

slashed below the cost of service, some operators work their drivers beyond the legal limits of hours and others are compelled to follow suit or lose business, equipment depreciates to the accident point and proper depreciation is not provided for." It further says—"This cut-throat competition has demoralized motor transport in Ontario and now truckers and shippers alike are demanding that something be done at once to correct these evils."

Some persons have the opinion that the operating functions of transportation by truck of merchandise shipments, or less than carload traffic, provides for direct transport from the door of the shipper to the door of the consignees without transshipping or rehandling enroute. This is a false impression, since the average merchandise or less-than-carload shipment only weighs about 400 lbs., whether shipped by truck or by rail, and the heavy types of motor vehicles which are operated over the highways are not only too burdensome, but also too costly, to maneuver in and about shipping and receiving warehouses. The facts are that the heavy type motor vehicles are confined to over-the-highway service and small vehicles are employed by the truckers to perform the local pick-up and delivery cartage work. This then means that the truckers apply substantially the same methods in the transportation of these shipments as are applied by the railway. The only difference in the functions of the two transportation agencies is that the railway transports the shipments from station to station in railway equipment, and the trucker transports them in heavy-type road vehicle equipment. Shipments in truckload quantities are, of course, subject to other treatment.

### Costs

Reference should now be made not only to the approximate trucking costs for the transporting of merchandise, or less-than-carload shipments, but also to the rates charged the public for trucking services rendered in comparison with the railway rates which are at present in effect.

To illustrate this, take, for example, merchandise, or less-than-carload shipments, transported by truck between Peterboro and Toronto, a distance of 90 miles. The trucking cost factors for the complete door-to-door service are subdivided into three classes, as follows:

1. The cost of local pick-up and delivery cartage service.
2. The cost of clerical, administration, garage, overhead, etc., service.
3. The cost of trucking over-the-highway service.

It is admitted that these cost factors vary in proportion to the kind, class and nature of the transport service rendered, and also that the matter of transport costs is a controversial issue, but, according to the most reliable figures available, these cost factors are:

1. For local pick-up and delivery cartage service at Toronto and Peterboro, about 16 cents per 100 lbs.
2. For clerical administration, garage, overhead, etc., about 8 cents per 100 lbs.
3. For over-the-highway service, about 14 cents per 100 lbs., based on a 90-mile haul.

In all, the total cost for the average merchandise shipment, which weighs about 400 lb., is equivalent to about 38 cents per 100 lb. These cost factors include reasonable charges for depreciation of vehicle equipment and plant, insurance, license fees, office and garage rentals, taxes, supplies and materials, maintenance, wages, etc. Compared with this estimated cost of 38 cents, the rate charged by the trucker is from 35 cents downward, confirming the statement made by the Automotive Transport

Association that truckers' rates are below the complete cost of the service. On the contrary, the rate now charged by the railway for similar service, although based on classification of traffic, is equivalent to about 40 cents per 100 lb.

The next step in co-ordination is the ability of the railway to adjust its services to the new conditions. This task of readjustment of the Canadian National services was begun as early as 1928, when the railway began trucking between inter-city freight sheds at Toronto and Montreal rather than switching merchandise cars between these sheds. This innovation resulted not only in 24 hours quicker service, but also in a substantial saving to the railway.

Early in 1932, the railway began to make an exhaustive study of highway trucking services and the cost of such services. This study has since been continued, and on March 6, 1933, an experimental co-ordinated plan of operation was put into effect.

Convenience, speed and low cost have been fully provided for in this new service. All a shipper has to do is to telephone the railway freight agent. The freight agent will arrange for a competent local trucker, acting for the railway, to call at his store, factory, mill or home for the traffic. The freight agent will also arrange for the transportation from station to station, and for the delivery to consignee by another trucker at the destination station. For this great convenience, the transportation charge is approximately 30 per cent less than the former charge by the railway, and the service is at least equal to, if not quicker than, highway truck service.

In addition to local cartage service, the railway instituted station-to-station truck routes when it became evident that the service would be improved or economy effected, or both. For these services, the C. N. serves as an agency to keep all of its truckers informed as to licensing requirements, insurance, etc. The C. N. also specifies the proper type of equipment to be used. The education of such cartage agents is important, as they are apt to be too optimistic and too eager to expand.

Services of this character at present in effect in Ontario are: Kitchener-Preston-Hespeler-Galt-Brantford, 43 miles; St. Thomas-London-Toronto, 70; Oshawa-Bowmanville, 9; Toronto-Oshawa, 32; Oshawa-Whitby-Port Perry, 21; Napanee-Deseronto, 7; Sudbury-Copper Cliff, 3; Cobourg-Port Hope, 5; Belleville-Picton, 25; Hamilton-Burlington, 12; Hamilton-Dundas, 4; St. Catharines-Merriiton, 3; St. Catharines-Thorold, 4.

### How Co-Ordination Works

To illustrate how the co-ordinated operations are conducted, take, for example, merchandise shipments originated at or destined to Peterboro. Shipments originated at Peterboro are picked up at the shipper's door as late as 5 or 5:30 p.m. by the local cartage agent of the railway and taken to the railway freight station where they are loaded into railway cars for movement in fast train service to destination station or distributing point. Shipments destined to Montreal and stations east are loaded into a through car for Montreal. This car arrives at Montreal early the following morning and the shipments are immediately delivered to consignees by the cartage agent of the railway.

Shipments destined to Ottawa are either loaded into a direct car for Ottawa or into the baggage car of the passenger train which leaves Peterboro at 8:20 p.m. Shipments are also loaded into this baggage car destined to Belleville and intermediate stations between Belleville and Montreal and Ottawa. On the arrival of the train at Belleville, this baggage car is immediately placed

at the Belleville freight shed where shipments are re-loaded into cars serving the different destination stations, in each case with the object of providing delivery the following morning. Shipments destined to Picton are trucked in co-ordinated service in truck, leaving Belleville at 8 a.m., arriving at Picton at 9:30 a.m. each work day. Shipments destined to Toronto and points west and north, also to Oshawa and New Toronto, are loaded into a car at Peterboro, which arrives at Toronto early the following morning. The Toronto shipments are immediately delivered and shipments destined to Oshawa or New Toronto are trucked from the Toronto freight shed to destination station in co-ordinated truck-rail service. In each case, the trucks leave the Toronto freight shed about 8:30 a.m. Shipments destined to stations north and west of Toronto are transhipped at Toronto into merchandise cars for forwarding on fast train service to destination stations. Shipments destined to Petersboro are afforded the same handling in the reverse direction and are delivered to consignees before 10:30 or 11 a.m.

### Conclusions

The great changes which have been brought about in the field of transportation through the influence of the motor truck; the unsatisfactory financial position of the transport industry; the indispensability of the motor truck as a freight-carrying agency, where used wisely; the economic waste that is taking place, caused by duplication of transportation facilities, part regulated and part unregulated; and the legislation enacted in other countries to bring order out of chaos definitely emphasize the need of just and fair regulation in Canada, not only to protect and preserve the financial well-being of the transport industry, but also to establish a sound footing for an efficient and economic system of co-ordinated transportation, whether used in the interchange of traffic between the larger centers of population, or in the farming communities, for live stock, farm produce, fruits and vegetables and equipment.

\* \* \*



The New Burlington Trailways Station at Omaha Provides for Off-Street Loading and Unloading

# Giving Shippers What They Want

Missouri Pacific has built up a large trucking system to serve patrons' needs

**A**FTER some six years of truck operations, the Missouri Pacific has built up a rail-highway co-ordination system that gives shippers and receivers the service they want, and that is responsible for the large and steady gains in the merchandise traffic handled by the M. P.

This system was begun in an experimental fashion, but it has long since passed out of that stage. The railway now maintains a staff of men who not only solicit merchandise traffic, but also study the transportation problems of the shippers and receivers thoroughly. If competing forms of transportation other than the railways are being used, it is the duty of these men to find out why such competitors are preferred, and amazing results have been obtained in the way of revising the rail service under the co-ordination plan to provide the same or better service than the competitors. All too frequently it was found that the shippers abandoned the rail lines for reasons that were easily remedied, the difficulty being that, hitherto, the railways had not been willing to study the shippers' needs as closely as competing forms of transportation did.

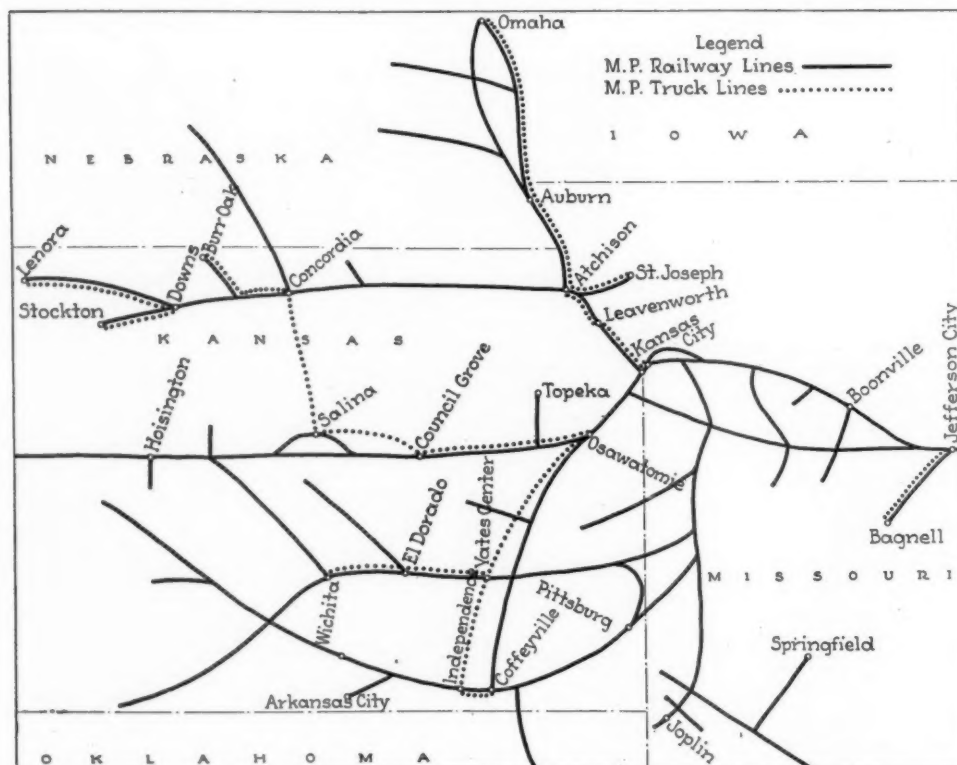
The accompanying maps portray graphically the results of such study on the part of the Missouri Pacific. Figure 1 shows the truck routes operated in conjunction with the rail service on September 1, 1936. Figures 2 and 3 show the present co-ordinated truck routes in Kansas and Missouri, respectively. A comparison of the three maps shows the progress made in the last year, and indicates that the co-ordination activities have

been practically doubled during the intervening months. In addition to the Kansas and Missouri routes, the Missouri Pacific is also engaged at present in building up an elaborate system of rail-highway co-ordination in Louisiana. Most of its applications for truck route permits are now before the Louisiana commission and it is expected that the system will be in operation in that state shortly after the first of the year.

## Operating Details

The history and methods of operation of the highway freight units of the Missouri Pacific were given in detail in the Motor Transport section of the *Railway Age* of June 27, 1936, page 1053. The large additions that have been made to the co-ordinated system are operated along similar lines, except on an expanded basis. Briefly, the operations consist of paralleling the main lines with truck routes, not competing but co-ordinating with the railway. This service consists of handling the merchandise by fast train to certain specified concentration and distribution points. The freight is then handled by truck to local stations from these points, thereby providing a speedier and more flexible service than would be possible by all-rail movement.

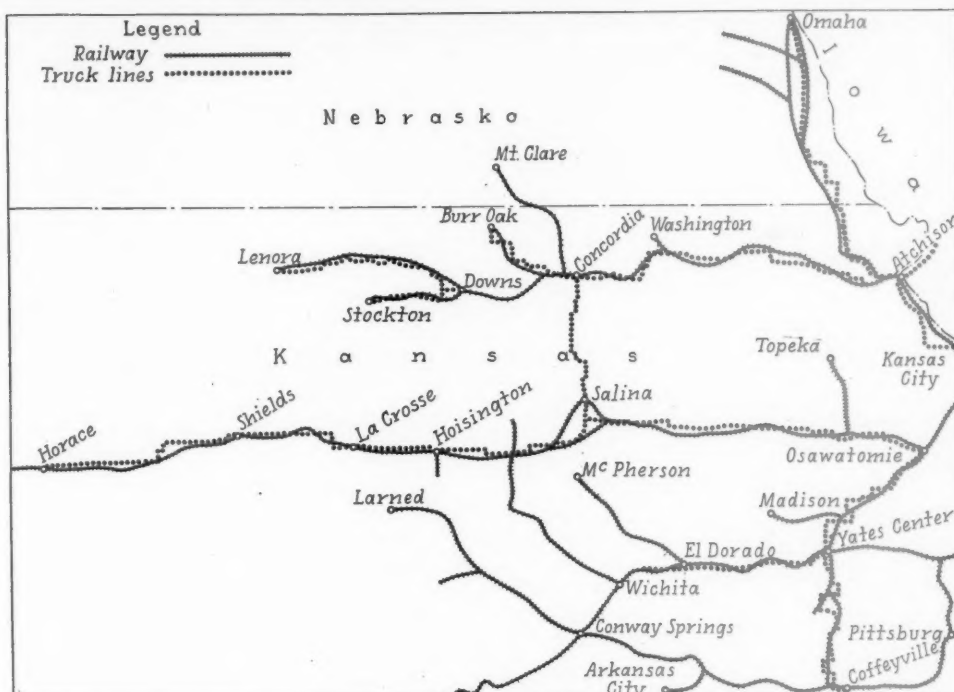
The Missouri Pacific also utilizes cross-country truck routes to a large extent, connecting branch lines with main line points and also connecting the secondary main lines with the Colorado-Kansas City line. This latter operation eliminates the handling of the merchandise



M. P. Truck Lines in Kansas, Missouri and Nebraska in 1936



**M. P. Truck Lines in Kansas and Nebraska Today, Showing Expansion in Twelve Months**



through several junction points and speeds up the movement by as much as 48 hours in some instances. On many of these cross-country lines, the Missouri Pacific leaves its railway line. For example, the line between Salina, Kan., and Concordia, 61 miles, touches the M. P. rails only at its terminals. This line, however, serves no intermediate points and is used solely to expedite merchandise between its northern Kansas secondary main line and the central Kansas main line.

#### Kansas Lines

As will be seen from the maps, the Kansas truck routes have been materially extended during the past year. In addition, the highway routes in existence last year are now served in most instances by many more trucks to care for the increased business.

The principal additions to the service this year have been the establishment of truck routes between Atchison, Kan., and Concordia, on the northern Kansas line and between Salina, Kan., and Horace, near the Kansas-Colorado state line, on the southern Kansas line. The Atchison-Concordia line is 155 miles long and is used to give local stations prompt service between those points. It connects with the Omaha Kansas City line of the railway at Atchison as well as with the truck routes radiating from that point. At Concordia on its western end it connects with the Concordia-Burr Oak truck route and also with the Concordia-Salina cross county truck route. It provides first morning delivery from Kansas City to all the stations it serves.

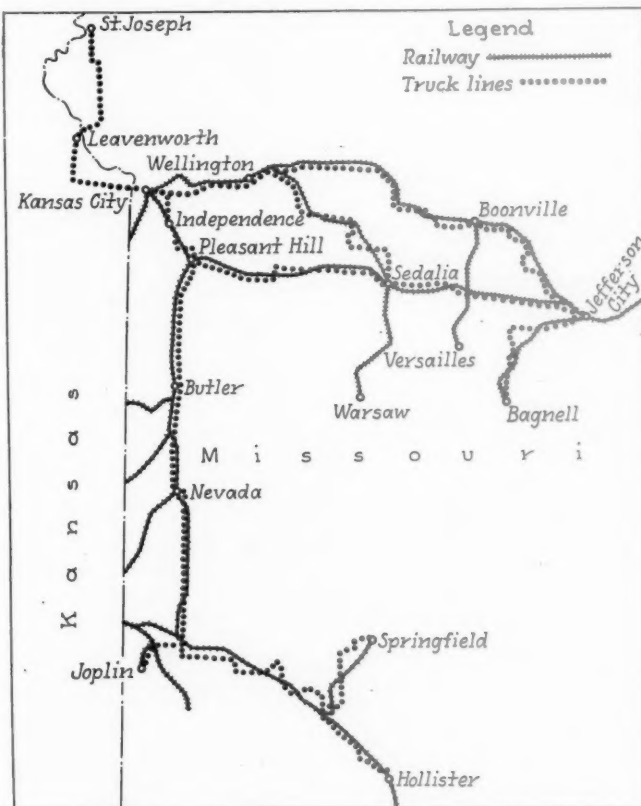
The Salina-Horace route, 250 miles, serves the main line local stations between those two points. A series of collection and delivery stations has been set up in this territory and the trucks operate east and west out of these stations to local points with merchandise brought in by rail.

The only truck routes in Missouri that were operated in connection with M. P. rail service last year were between Atchison, Kans., and St. Joseph, Mo., 25 miles, and between Jefferson City and Bagnell, 67 miles.

By contrast, the accompanying map shows the growth of a complete rail highway co-ordination system in the

western half of Missouri that has been built up during the past year. Two truck routes have been established between Jefferson City and Kansas City, 158 miles long serving local stations on the main line via Sedalia, the other one 167 miles long serving the river line between those points via Boonville. Still another truck route of 58 miles has been established connecting these two routes, and operating along the railway's Myrick-Sedalia branch.

In western Missouri, the railway line between Kan-



**M. P. Truck Lines in Missouri, All But Two Short Routes Were Established This Year**

sas City and Joplin, 167 miles, is also paralleled with a truck route established this year, with branches to Hollister and Springfield.

The Blake Transport Company of Kansas City operates these truck routes on a mileage basis, and all freight is carried through to destination on railroad billing. The entire operation is handled with the shippers by Missouri Pacific agents.

As previously stated, the Louisiana co-ordination will soon be worked out, and the Missouri Pacific is continuing its studies with a view to still further expanding the truck routes, which have been more than doubled within the past year.

## Frisco Trucking Authorized

**O**N September 20, the federal court at St. Louis granted permission to the St. Louis-San Francisco to operate a co-ordinated rail-truck service. Plans are already under way to bring about the operation of this supplementary service at the earliest possible date. The new service will eventually blanket the entire system, giving co-ordinated connections at the major points along the line. The undertaking will proceed gradually, with the first truck line probably operating out of Joplin, Mo.

## British Paper Reviews Railway Bus Services

**A**PAPER entitled "The Organization of the Omnibus Industry in Great Britain" presented to the Institute of Transport (Great Britain) in March by C. F. Klapper, a graduate of the institute, and published in part in the July issue of the journal of that organization, contains a brief analysis of the chief means by which the British railways have entered the motor bus operating field. In addition to isolated and comparatively unimportant direct operation of highway passenger services, the roads have resorted to four distinct financial and operating plans: (1) Purchase of existing highway transport companies. (2) Consolidation of existing railroad motor bus affiliates with larger companies engaged directly in highway operation. (3) Establishment of joint services with urban transit companies, providing for local operation by the latter solely, suburban service jointly with the railroad company, and through runs by the railroad subsidiary alone. (4) Purchase of large, but not controlling, interest in the existing highway carriers.

The author of the paper believes that the railways have definitely limited their entrance into the road transport field and, as implied above, have made little effort to enter this field directly. This attitude, he feels, arises from several important factors. In the first place, agreements have been effected with the large motor bus holding companies, limiting railroad invasion of the field. In addition, experts consider that road transport is best operated by specialists rather than as a service subsidiary to other modes of transportation. Finally, tempering the whole question of road services by railway companies is the fear that, due to the disparity between standards of wages and of conditions of work as applied to railway

service and as accepted in road transport, the labor unions will demand the establishment of railway labor standards on motor bus services operated directly by the rail carriers. Such was the case when the Great Southern (Ireland) absorbed the Irish Omnibus Company, Ltd., controlling nearly all of the interurban bus routes in the Irish Free State.

## Foreign Roads Acquire Bus and Truck Lines

**A**CQUISITIONS of motor transport companies by railways and legislative enactments designed to foster the co-ordination of rail and highway services have become world-wide in scope, according to recent reports received by the Bureau of Foreign and Domestic Commerce, United States Department of Commerce.

These reports indicate that the South Manchuria Railway is planning to increase its already extensive bus system by nearly 1,000 miles of new routes. Meanwhile, the Bergslagens Jarnvogsaktiebolag, one of the largest private railways in Sweden, has recently acquired 11 independent bus lines and plans to inaugurate 5 new lines, which will give it a total daily bus mileage of well over 750 miles. This railway is also negotiating the consolidation under its ownership of all truck lines now serving its competitive territory. The Swedish State Railways are also engaging in extensive motor transport operations in connection with their rail service.

The Danish State Railways at the close of their last fiscal year ended March 31, 1936, were operating 64 bus routes protected by 197 buses and seven trailers. These government roads commenced acquiring bus routes in 1932, the object being to purchase all highway passenger services competing with the railways. In the latter category were about 10 per cent of Denmark's total bus route mileage, and virtually all of this is now under railway ownership. While the State Railways have confined their operations of highway vehicles to passenger traffic, many of the private railways have taken over both bus and truck routes where it has been found desirable, from a competitive standpoint. It is reported in this connection, that the Minister of Public Works, who gives the final approval to concessions granted by the county authorities for bus and truck routes, has been liberal in granting such concessions to the private railways. No statistics are available however, as to the number of routes operated by private railways. Several branch lines of both the State and private railways have been closed during recent years because of the increasing competition from highway transport.

The Italian Minister of Colonies is reported to be devoting considerable study to motor transport in Italy's East African colonies. Careful attention is being given to all applications for licenses to inaugurate highway services there with a view to limiting such permits to responsible operators. This policy, it is anticipated, will eliminate abuses arising from the hastily organized services now existing in that territory.

The Turkish government is now encouraging the development of highway freight and passenger services in that country in accordance with a "Five-Year Plan" for the improvement of highways leading from ports to interior points. The state railways will organize motor truck services on these new highways, but private companies may also operate over the routes. Motor bus operators in Turkey are required to carry accident in-

insurance under a recently-promulgated decree. Inspectors of large insurance companies, which will write the policies, will be authorized to examine public service vehicles to check their compliance with safety regulations.

In Argentina the National Co-ordination of Transport Law became effective on January 16. This legislation which was first proposed in 1935 creates a national commission to promote co-ordination of all transport in the "public interests and general economy of the nation." The commission is composed of seven members including a president, the heads of the national highway, port and national and state railway departments as ex officio members, a representative of the railways and of motor transport.

The Victorian Government Railways is the only system in Australia operating highway services. This line operates five bus lines and eight truck lines, and owns 27 passenger and 80 freight automotive units, the total daily route mileage being 68 for buses and 114 for trucks. A number of the other provincial railway systems, however, engage in rail-highway co-ordination by means of arrangements with contract carriers, the Queensland Railways having established some ten such routes in the vicinity of Brisbane during 1936. The New South Wales Railways have a number of co-ordinated rail-highway freight services, on the basis of rail haul between concentration and distribution points, with collection and delivery to points within a radius of 30 miles of the focal rail stations handled by highway trucks.

The Sacramento Northern motor bus service will be so operated as to make direct connections at Oroville with Sacramento Northern trains 2 and 7 from and to San Francisco, Sacramento, Marysville and Chico. Both eastbound and westbound passengers will have time for lunch at Oroville. Eastbound, Sacramento Northern train 2, leaving San Francisco (Key System ferry) at 7:40 a. m., Oakland at 8:10 a. m., Sacramento at 10:35 a. m. and Marysville at 12:02 p. m., arrives at Oroville at 1:22 p. m., making connection with the motor bus which leaves Oroville at 1:50 p. m. for Portola and way stations. Westbound, the bus arrives at Oroville from Portola and way stations in time to connect with Sacramento Northern train 7 which leaves Oroville at 11:40 a. m. and arrives at Marysville at 12:52 p. m., Sacramento at 2:10 p. m., Oakland at 4:42 p. m. and San Francisco (Key System ferry) at 5:15 p. m.

An optional arrangement prevails whereby Sacramento Northern bus and railway tickets will be honored for passage on Western Pacific trains between the points served by these three lines. Similarly, Western Pacific rail tickets will also be honored on Sacramento Northern buses and Sacramento Northern trains.

The motor bus equipment, streamlined in design, is of the latest parlor car type. The buses are constructed of steel and are equipped with all modern safety devices. They have 42 seats with rubberized cushions and are of the three-position reclining type. Inauguration of the new motor bus service by the Sacramento Northern will open a new California travel route with great scenic attraction. Among the outstanding points of interest along the route is the 120-mile trip through the Feather River canyon.

## Feather River Bus Route

**D**AILY daylight motor bus service through the scenic Feather River canyon between Oroville, Cal., and Portola, was inaugurated by the Sacramento Northern on August 17, following the official opening of the new Feather River highway. In addition to regular stations designated in the canyon, roadside stops will be made on flag. The run between Oroville and Portola will require a little more than four hours.

## Santa Fe Bus Case

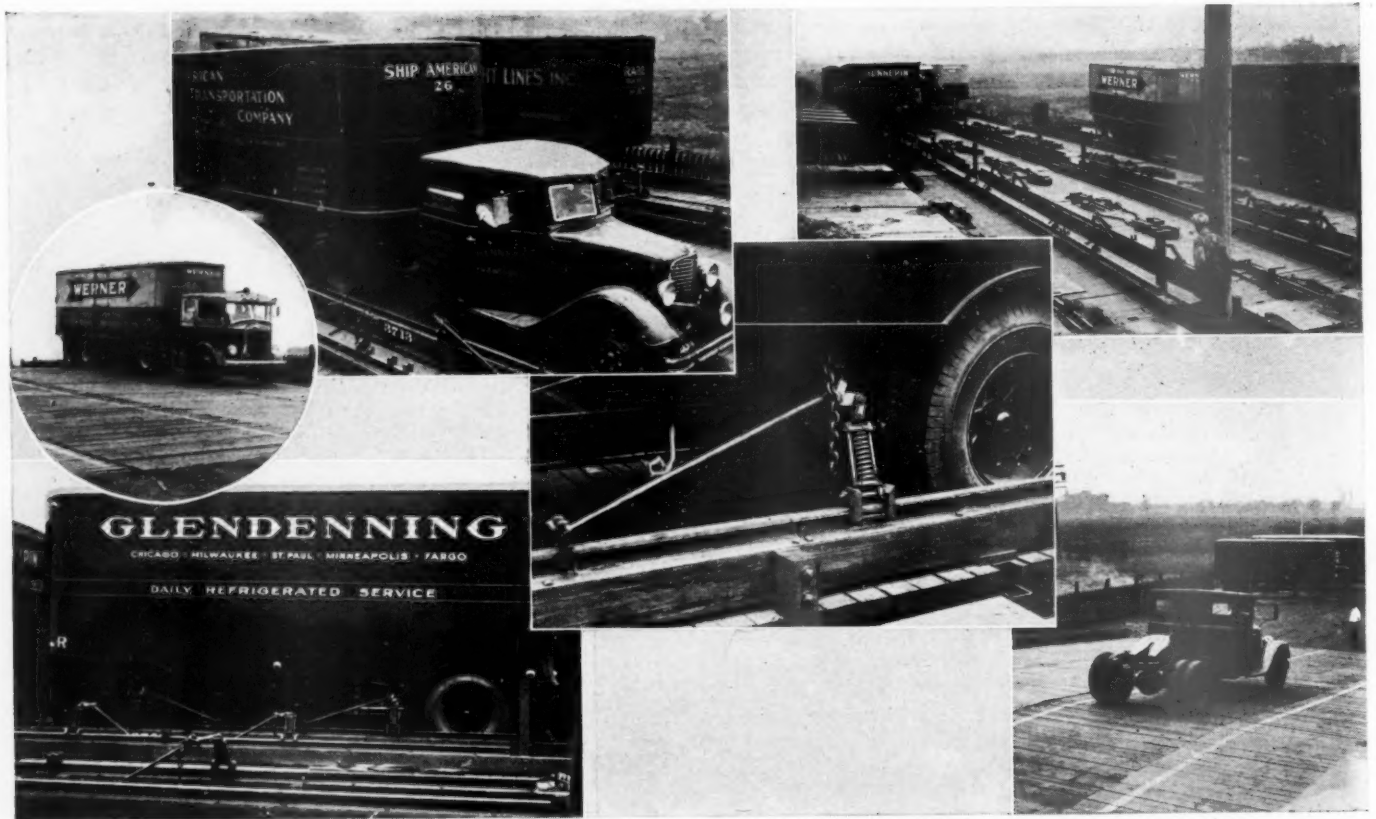
**O**N September 4, the Santa Fe Transportation Company filed a final brief before the California Railroad Commission in the case of its intra-state co-ordinated bus and train operations in California. Hearings in this case were begun in March, 1936, and it is expected that after the opposition has been given time to file briefs, a final decision will be rendered about the first of the year.



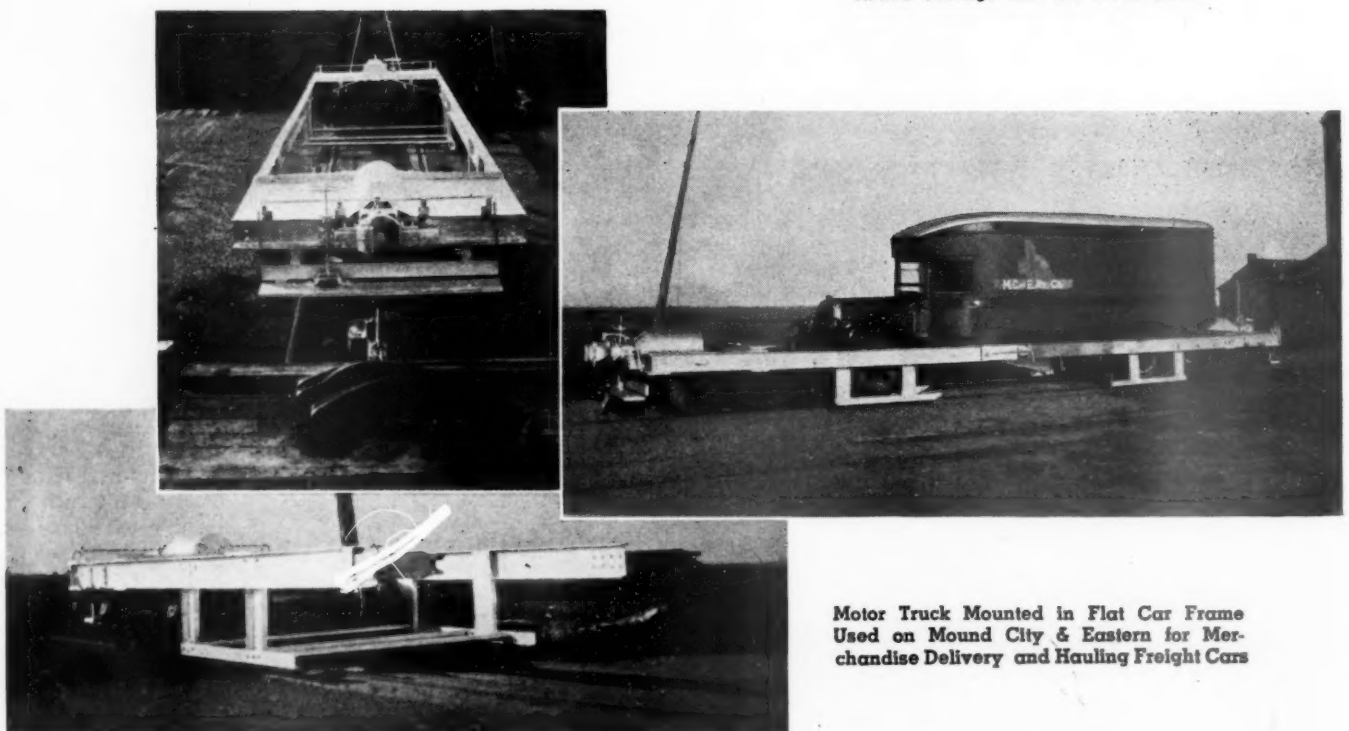
Modern Equipment Is Used  
In Feather River Canyon



# Unusual Types of Rail-Highway Co-ordination



Types of Equipment Used in the Chicago Great Western Truck Ferry Service Between Chicago and the Twin Cities



Motor Truck Mounted in Flat Car Frame Used on Mound City & Eastern for Merchandise Delivery and Hauling Freight Cars

# Odds and Ends . . .

## Heaviest Engineman

E. E. Denton, yard engineman for the Missouri-Kansas-Texas at Parsons, Kan., claims the heavyweight title among enginemen. He tips the scales at 351 lbs.

## Faster Than Pigeons

Whatever other speed records the new "Chippewa" of the C. M. St. P. & P. may possess, its outstanding one is that it is faster than homing pigeons. The birds were released in Chicago when the "Chippewa" started its first trip, but the train beat the first of the pigeons into Green Bay by 1 hr. 26 min.

## Yoicks!

In England during the hunting season, the fox and the hounds have the right of way over trains. This is exercised only infrequently, but, last season, the Belvoir hunt held up a fast London train for eight minutes to permit fox, hounds and horses to cross the tracks.

## Rhinoceros-Locomotive Collision

On the Nairobi-Mombasa line of the Kenya railway in East Africa recently, a white rhinoceros charged a locomotive and derailed the train, injuring several passengers. The rhino was killed. Big game of all sorts is frequently seen along this line, but this is the first instance of animals charging trains.

## Presidents

B. J. Schwendt, assistant signal engineer, New York Central, is a member of the Cleveland Engineering Society, and recently discovered that that body contained eight presidents or chairmen of national engineering societies, headed by Mr. Schwendt himself, who is chairman of the Signal section, A.A.R.

## Ex-Railroaders

Walt Disney, creator of the immortal "Mickey Mouse", was formerly a news agent on the Alton, running between Chicago and St. Louis, Mo. Lincoln Ellsworth, famous polar explorer, is another ex-railroader, having worked as a transitman for five years on the construction of the Prince Rupert line of the Grand Trunk.

## A Famous Railroad

Arkansas has the world's most famous railroad. It goes through the Dardanelles (Dardanelle, Ark.), it crosses the Delaware (Delaware Creek), it is in sight of London (London, Ark.), it passes through Subiaco, where is located a monastery named after the one in Italy, and terminates at Paris (Paris, Ark.). The name of this railroad is the Fort Smith, Subiaco & Rock Island.

## Philosopher

H. R. Safford, executive assistant, Missouri Pacific, contributes a statement from the Houston Press, showing real railroad philosophy, as follows:

"A man ast one of H. R. Safford's agents wot time did the next train run—an' the agent sed 6 o'clock—an' the man sed—won't thare be one before then—an' the agent sed—nope, on account we never run one before the next!"

## Pigeons En Route

Throughout England and Scotland the homing pigeon racing season was recently in full swing. The meets, which continue until September, require special railway facilities for the transportation of the racing birds. More than 15 million train journeys will be made by these pigeons, and, for the more important meets, fleets of "Pigeons Only" expresses will be operated. On these trains official conveyors accompany the baskets of the racing birds; on ordinary trains, to which special pigeon cars are at-

tached, members of the railways' staffs receive special instruction in the proper handling, feeding and watering of the birds.

## His Honor—The Chef

As one who has enjoyed countless excellent meals on dining cars, the editor of this department looks with favor on the idea of the Missouri-Kansas-Texas, which gives the name of the chef alongside that of the steward on its dining car menus. All honor to those hitherto nameless masters of the culinary art, who labor in the rolling kitchens to turn out many a tasty dish for the hungry traveler.

## Railroad Hotel Man

A railroad man during the week—a hotel proprietor weekends. Such is the routine of J. J. O'Connor, Southern Pacific ticket clerk in New York. Mr. O'Connor came to the conclusion last spring that there must still be money in the world, after selling dozens of transcontinental tickets daily for streamlined trains to the coast. So he and his brother-in-law purchased the Swartswood Lake Club, New Jersey, and there, over Sundays, he aids in greeting guests whose vacation haunts lie nearer home than those who visit him week days to buy tickets west. The hotel venture has prospered and Mr. O'Connor now is somewhat nonplussed, for he cannot be quite sure whether he is a railroad man, with a hotel as a side line, or a hotel man, selling rail tickets as an avocation. In any event, he has given his chef one of the S. P. brochures entitled "Our Dining Car Recipes," to be certain that meals are prepared a la Southern Pacific.

## Railway Earns Bovine Gratitude

It is not every cow that likes the steel road, but Suzanne, known as the farthest-north cow in the province of Manitoba, is going to pull for the railroad from now on, and all because the railroad literally pulled for her. Suzanne supplies milk to some of the inhabitants of Gillam, Manitoba, a little town on the Hudson Bay line of the Canadian National. Recently she took a stroll down the right-of-way, slipped, and landed in a quicksand surrounded by muskeg. Man-power proved futile in the subsequent attempts at rescue, and the railway sent out the wrecking crew with the "big hook". The illustration shows the wrecking hook pulling Suzanne from the quicksand.



The Railway to the Rescue Under Unusual Circumstances

# NEWS

## Commission Closes Milwaukee Case

Commissioner Porter says I. C. C. may have to write its own plan

If the action of Commissioner Claude R. Porter of the Interstate Commerce Commission can be taken as indicating the present attitude of the commission, the country can be assured of a speedy termination of the reorganization proceedings of several railroads which are now in the process of reorganization. At the hearing on September 20, Commissioner Porter ignored protests of counsel for both the Chicago, Milwaukee, St. Paul & Pacific and counsel for the Walker committee of institutional bondholders that they be given an extension of 120 days to see whether or not they could prepare a new plan of reorganization for the Milwaukee. He closed the hearing and said that since the debtor and the bondholders could not agree on a plan, the commission would examine the record and see whether or not it could write a plan or whether it would have to dismiss the case and let the creditors take their appropriate legal action.

Strongly emphasizing each word, Mr. Porter said, "the trouble is no one comes in here and says 'give us 90 days or 120 days and we will come in with a plan.' There is no assurance that if this case is continued that there will be a plan, a bona fide plan filed here for reorganization of this road." Commissioner Porter told his hearers that he believed that he spoke the views of Division 4, which at a conference last week decided that there should be no further delay in the reorganization of the Milwaukee.

At the resumption of the hearing, H. A. Scandrett, president of the road, took the stand and asked for an adjournment of 120 days in which the debtor and the bondholders would again try to revise the 1935 plan to make it fit 1937 conditions. Mr. Scandrett produced evidence to show that the revenues of the road were not up to expectations, and the expenses had exceeded previous estimates to such an extent that the pending plan involved too many risks to be incurred at this time. He also mentioned the fact that the present negotiations between the managements and the brotherhoods might result in increased wages to the operating men. He said that he did not feel that a plan should be pushed until these contingencies had been straightened out. Commissioner Porter retorted by saying that some contingencies

would exist even after 120 days or several years. He said that he did not feel that this was sufficient excuse to delay the reorganization.

Fairman R. Dick, chairman of the debtor's reorganization committee, told the commission that it would be both "rash and unintelligent" to attempt to predicate a plan at this time upon the belief that the necessary additional revenues needed will be provided. He said that any plan which is predicated upon today's earnings would do great violence to all classes of the road's securities.

Kenneth F. Burgess, counsel for the institutional bondholders' committee, immediately told Commissioner Porter that he would appeal the decision closing the record to the full commission. He said that he would contend that the commission had no authority to write its own plan in view of the fact that there was no plan officially before the commission, since the Milwaukee management had withdrawn its support of the 1935 tentative plan and the institutional bondholders would not support it.

Commissioner Porter gave the parties 60 days to file briefs, but warned them that although there was a possibility that he might be overruled by the commission, they had best not rely on it, but had better go ahead and prepare the final briefs.

### Mid-West Board Meeting

The next meeting of the Mid-West Shippers Advisory Board will be held at Evansville, Ind., on October 7. The program provides for discussion of the coal car supply, the necessity for prompt loading, unloading and transit of these cars and the reduction of bad order cars. At the annual dinner of the Transportation Club of Evansville on the same day, J. P. Haynes, executive vice-president of the Chicago Association of Commerce will be the principal speaker.

### Annual Meeting of Associated Traffic Clubs

The 16th annual meeting of the Associated Traffic Clubs of America will be held at the Jefferson Hotel, St. Louis, Mo., on October 12 and 13. The Association of Practitioners before the Interstate Commerce Commission will also hold its meeting in St. Louis on October 14 and 15. The three principal addresses at the Traffic Clubs' convention will be made by M. J. Gormley, executive assistant of the Association of American Railroads, William T. Nardin, vice-president and general manager of the Pet Milk Company and the Honorable S. B. Pettingill, Member of Congress.

## Capital Needed If Jobs Are to Last

R. Budd tells employees there is \$25,000 invested for each to make his job possible

In an address made before the Veterans' Association and the Ladies' Auxiliary of the Burlington Lines at Denver, Colo., on September 18, Ralph Budd, president of the system, brought home to these employees the fact that "our enterprise rests on a three-legged stool, represented by patrons, employees and investors. Fair dealing by all three, and towards each by the other two, is essential for permanent success. Failure of any one of the three legs will bring disaster. It is quite clear from present operating results that there is danger that the sources of capital which must be relied upon to keep the plant abreast of the time may be dried up, or greatly impaired. The supporting leg which depends upon income sufficient to maintain our high credit needs to have close attention."

Mr. Budd stated that "the volume of freight traffic handled during the 12 months ending September 1 was 9 per cent more than during the preceding period, while the increase in passenger business was nearly 18 per cent. Yet this larger volume of traffic has been handled without a corresponding increase in net railway operating income. In fact, the larger volume of traffic is actually yielding less income than the smaller volume did in the previous year. The net results of railway operation are of concern to employees as well as to management.

"In order to make the Burlington situation more easily understood, I should like to treat the property and the business it does in terms of the average employee. The C. B. & Q. alone, based on conservative findings of the Interstate Commerce Commission, has a value of \$630,000,000. That means that for each employee there is \$25,000 worth of plant which has been built up and is being maintained for his or her use. Carrying the thought along, it is possible to follow the operations of this \$25,000 unit to the final disposal of every dollar that is earned, because the railroad business is one whose operations are revealed in great detail by reports to the I.C.C. Each unit which represents \$25,000 investment for each employee took in approximately \$3,860 last year. Let us see how this \$3,860 was disposed of. A total of \$1,750 of it was paid to the employee; \$850 went for materials and sup-

(Continued on page 435)



## Sees New Demands For Transportation

But Duncan warns against using railroads as "social" reform laboratories

Discussing the "Future Outlook for Business," Dr. C. S. Duncan, Economist of the Association of American Railroads, in a speech in Pittsburgh, Pa., on September 23 predicted that demands of industry for transportation will continue to increase in the next 25 years at a rate greater than the growth in population and that the railroads will continue to be the mainstay of the nation's transportation service. Dr. Duncan warned, however, against continued use of the railroads as "social reform laboratories" and against continued political interference that results in increased cost of operation.

Addressing a luncheon of the Allegheny Regional Advisory Board, he said in part:

"Business men will find in the future, as in the past, a vast and an increasing population with increasing individual wants to be supplied. I can not believe that any trend toward intensive activity, elimination of waste, relocation, better materials, substitution of gas and electric power for coal, all of which are not new, will wholly counterbalance increased productivity and increased commodity movement. Inventions are running at the rate of 50,000 per year and in some laboratory or in some fertile brain are the ideas for a greater business activity in the future.

"It is my opinion that ton-miles of transportation will increase somewhat faster than population growth, due to expanding individual wants usually called rising standard of living, so that business and transport agencies may look forward at long range to more production and greater transportation service demand.

"How this expanding business will be divided as among the transport agencies is anyone's guess. While railroads have lost substantial traffic to rapidly developing competitors, there has not yet arisen a prophet who is in disagreement with the oft-reiterated declaration that the railroads will remain the mainstay of the nation's transport service."

Dr. Duncan said that diversion of traffic from the railroads, largely to trucks on the highways, became distinctly noticeable after 1924. Indications are, however, he continued, that the railroads are now regaining some of that lost traffic.

"Some of these competitors undoubtedly are now drawing near the close of their honeymoon," he said in this connection. "The time is almost here when they will have to assume more serious responsibilities, with added costs. Some freight will return from them to the railroads and railroad ton-mileage will rise above the 1929 level.

"I must add that far-reaching improvements will occur in all agencies. The monies expended for these improvements will be beneficial to business. Shippers may confidently look forward to more efficient service, and so abundant and adequate

as no similar period in the past has afforded. Just as other productive activities will never return to a household economy stage, so transportation of commodities will never become a function of individuals or industries.

"There will have to be adjustments as between transport agencies—what we call vaguely co-ordination—as a matter of course. I hope they can be made on a sensible basis, including reasonable and businesslike consolidations and a commensurable regulation.

"My faith in the economic soundness of railroads for the future is unshaken. They will continue as the mainstay of the country's transportation service. If, however, the question is asked—Will they be carried on as private enterprise for the next quarter of a century? my answer would be this: If the policies for promoting competitors carried on through the past twenty-five years are extended through the next; if railroads are to be used as social reform laboratories in such matters as pensions, social security wages; if politics continue to increase operating expenses and reduce revenues, and if the controlling factors remain social and political rather than economic, my answer is no, emphatically no!

"As the situation stands this day, railroads are headed directly, inexorably toward government ownership. Private credit can not withstand the encroachment of public credit. Private capital secured on the basis of earning power can not long maintain the unequal struggle with public funds derived from taxing power.

"If this strong tide to this shore, whether rocky or a safe and secure haven, is stemmed at all, it will be by the force of public opinion deriving from business and from business alone. The earning power of these properties must be protected if private enterprise continues. Given a fair chance, it can continue. If you want government ownership, you can have it. If you remain apathetic, you will get it. If you continue to support policies, for temporary or seeming advantage, without thought of consequence, which lead inevitably thither, then, of course, it will come. You will decide."

### Victorian Lines Build New Diner

The Victorian Railways (Australia) is constructing at its Newport shops a "kitchen-car" possessing several new features, to be placed, upon completion, in service on the "Sydney Limited". Constructed entirely of steel, a new departure in Australian car building practice, the car will be air-conditioned not only through vents placed in the dining portion but throughout the full extent of the kitchen as well.

A new type of stove has been developed to reduce kitchen odors and room heat to a minimum. Utilizing a slow-burning grade of anthracite mixed with coke, the stove is so highly insulated that while a heat of 1,000 deg. F. will be available on the cooking plate surface, the portion of the car immediate to the stove will enjoy normal temperature. In addition, forced ventilation will carry the reduction of odors still further and provide a circulation of cool air.

## Board Deplores Transport Waste

Resources group wants duplication stopped, control centered in one agency

A "prompt and thorough" study of the nation's transportation facilities is recommended in a report prepared by the Urbanism Committee of the National Resources Committee and transmitted by the latter to President Roosevelt on September 20. The purpose of the transport study would be to: "(a) Develop the general framework of a co-ordinated national transportation system directed toward an economically more effective and socially more desirable distribution of economic activities and urban pattern; (b) determine the feasibility of creating a unified federal agency for the regulation of all forms of transport." It would be made under the auspices of "a permanent National Resources Board" which the report recommends should be established by Congress.

The report, entitled "Our Cities, Their Role in the National Economy," is devoted to all phases of urban life, and considers transport only as it is one of those phases. Aside from those referring to transportation it includes a number of recommendations, which, a press release says, would, if carried out, "enable the federal government to concern itself with city dwellers as it has with farmers through the Department of Agriculture."

The brief discussion leading up to the recommendation for a transport survey cites the "wasteful duplication of transport lines as being 'among significant examples' of how in some industries 'unbridled competition has produced waste, maladjustment and lack of balance.'" It goes on to state the Urbanism Committee's views favoring "a form of economic organization better attuned to the public interest in the case of those enterprises which are of great and immediate public concern." In this connection the committee is of the opinion that "the kind of government regulation heretofore practiced has, in the main, perpetuated and, in some cases, accentuated the pattern of economic activity and of urbanization which competitive private enterprise developed with little or no consideration for the public interest and under policies and practices which, with each advance in technology, successively supported and stimulated the then prevailing economic and urban pattern."

In earlier sections of the report transport is mentioned here and there—first in the foreword where among a listing of "emerging problems" is found the assertion that competing carriers "have left their disrupting imprint upon the national urban pattern." It is pointed out how cities located on natural waterways found their position challenged by cities located on new canals, and these in turn met the competition of railroad towns. And the process continues, with the bus and truck in the field of competition, and the airplane be-

(Continued on page 435)

## B. & O. to Build 16-Cylinder Loco.

Locomotive departs from conventional practice; cylinders are geared to axles

The B. & O. has just completed the design of a new locomotive which is a radical departure from the conventional type in that the power is derived from four four-cylinder Besler steam motors geared directly to each of the four driving axles. It is believed that this locomotive will develop 5,000 hp. and be capable of handling 14 standard Pullman cars at a speed of 100 m.p.h. on straight level track. The locomotive is of the 4-8-4 wheel arrangement and has a tender, with a capacity of 23 tons of coal and 22,000 gallons of water, mounted on two six-wheel trucks.

The arrangement of the four Besler steam motors gives a total of 16 cylinders with 32 impulses to each revolution of the steam motors. With this design no counterbalancing will be required, and, inasmuch as there are no main and side rods or crankpins, hammer blows on the track will be eliminated. The absence of main and side rods and other motion work will also make it possible for the driving wheels, with their independently mounted steam motors, to negotiate sharper curves than locomotives of conventional design.

Gears and all other moving parts of the steam motor will operate continuously in a bath of oil forced by a pump to wearing parts. The cutoff position of the valve gear together with reversing mechanism will be automatically regulated from the cab by means of electro-pneumatic control.

The total weight of the locomotive will be about 400,000 lbs., 260,000 lb. of which will be on drivers. The total weight of the tender will be 350,000 lb. The tractive force at starting will be 72,500 lb., giving a factor of adhesion of 3.6, which is more than ample with the uniform torque. The Besler steam motors have a bore and stroke of 9½ in. by 7 in., and the gear ratio between the steam motors and the axle is 19 to 55. The total driving wheelbase is 21 ft., and the total engine wheelbase is 46 ft. 7¾ in. The total engine and tender

wheelbase is 103 ft. 3¼ in., and the length overall is 115 ft. 7¾ in.

The locomotive will be equipped with an Emerson water-tube firebox boiler having 775 sq. ft. of heating surface in the firebox and a total heating surface of 5,800 sq. ft. It will have a superheating surface of 1,530 sq. ft. and will be equipped with a feed-water heater. The firebox will be 138 in. by 84 in. and have a grate area of 80.5 sq. ft. The Besler steam motors operate on a guaranteed rating of 14 lb. per hp., and when the locomotive is developing 5,000 hp. the cylinders will require 70,000 lb. of water per hr., while the boiler will evaporate 80,500 lb. The working pressure is 350 lb. per sq. in.

The new locomotive will be extremely flexible in design and will have outside frames and spring rigging with oil-lubricated outside journal boxes. Each pair of driving wheels with its attached steam motor can be quickly removed on a drop pit for necessary repairs.

The locomotive will be streamlined on a pattern developed for the B. & O. by Otto Kuhler, consulting engineer of design. The design has been used in an adapted form for the streamlining of the B. & O.'s Diesel-electric locomotives and its New York train-connection motor coaches. A President-type B. & O. steam locomotive, streamlined along the lines for the proposed new locomotive, will soon be placed in service.

### Chicago Railway Business Women Open Fall Program

The Railway Business Woman's Association of Chicago will open its fall program with a Presidents' Night dinner on September 28. Ethel M. Mills will present films and speak on Coronation Time in England.

### Wage Mediation Continues

Mediation of the demands of the five transportation brotherhoods for a 20 per cent increase in pay entered the fourth week at Chicago without progress being reported. On August 28, Dr. William Leiserson, a member of the National Mediation Board, began meetings with each group and for the first time called both sides into a joint conference on September 16.

## Tax on Anthracite Royalties Urged

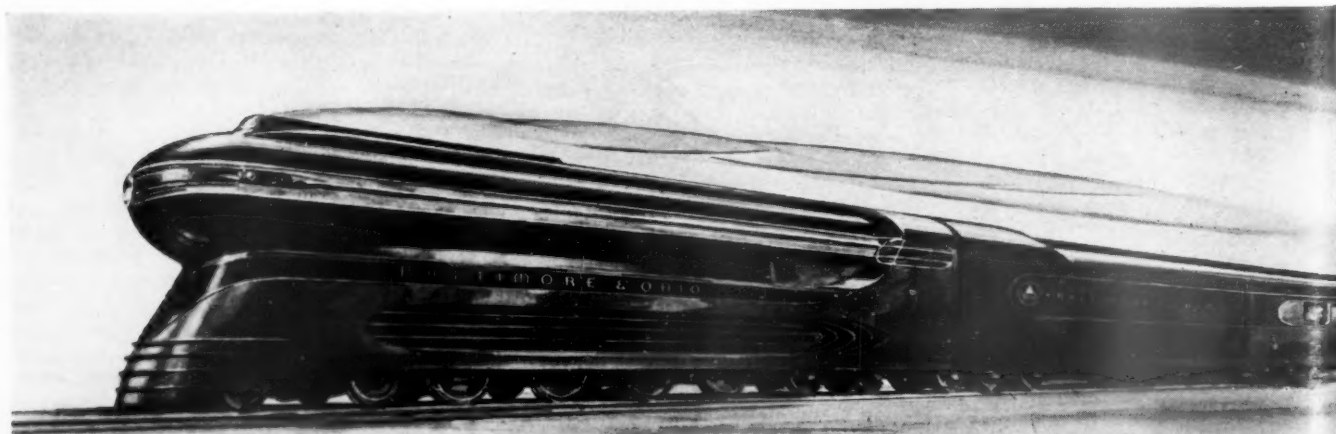
Would hit railroad affiliates as large owners of coal lands

A graduated tax on the gross income from anthracite coal royalties, of which railroad affiliates are at present large beneficiaries, is recommended in a recent report of the Commonwealth of Pennsylvania Anthracite Coal Industry Commission. The report, which was made public on September 22 by the commission's chairman, W. Jett Lauck, bases this recommendation on its finding that some such device is necessary to bring "free and independent competition" under present conditions wherein "the independent companies obtain nearly half of their anthracite from lands leased from railroad anthracite companies on a royalty basis."

The report, prepared under the direction of C. V. Maudlin, managing director of the Bureau of Applied Science, Washington, D. C., is one of several sections which will comprise the final report of the commission. These sections are being released for publication as soon as they are completed, and it is expected that one dealing with the history of anthracite freight rates and their significance will be forthcoming soon.

The present report on royalties includes a comparison of royalty payments by different types of anthracite producing companies and of depletion charges and royalties. It shows that approximately 40 per cent of the anthracite produced in Pennsylvania is mined under royalty agreements. Under these agreements the operating company pays for the anthracite removed, at a rate based on a predetermined fixed charge or a sliding scale under which the amount depends on the sales price of the prepared anthracite.

The "railroad anthracite companies" are said to produce about 80 per cent of their anthracite on lands which they own in fee, and only about 20 per cent on a royalty basis. The independent companies produce over 70 per cent of their anthracite on a royalty basis and somewhat less than



Artist's Conception of the Proposed B. & O. Locomotive Powered by Four Four-Cylinder Steam Motors



30 per cent on lands owned in fee. This is said to create a situation whereby "the independent companies are under the domination of, and their existence depends upon their maintaining the goodwill of, the railroad companies. Under such conditions there cannot be free and independent competition. The situation is becoming increasingly serious as the limited anthracite deposits owned by independent companies are being exhausted."

"Studies made by the Federal Trade Commission and the U. S. Coal Commission," the report continues, "have pointed out and stressed the effect of royalty arrangements on the price of anthracite. These reports and comments of students of the situation have recommended that some plan be developed for equalizing the cost of recoverable anthracite between the railroad companies and the independent companies. The problem has also had careful consideration in England, where similar conditions prevail."

"Data available indicate that during 1935 the weighted charge for recoverable anthracite to the railroad companies, based on a depletion charge of 14.2 cents per net ton on 80.8 per cent of their production and a royalty rate of 27.7 cents per net ton on the balance, has been 16.8 cents per net ton; whereas the independent companies have had to pay an average of 33.6 cents per net ton, which is exactly twice as much. The true competitive situation has been even greater, due to the fact that the independents pay an average of 41.5 cents per net ton on over 70 per cent of their production. As is often the case, this higher charge is reflected in full in the costs of the independent companies, and when pyramided by distributors has resulted in a price to the consumer of anthracite of at least 50 cents per net ton greater than it would be if the price were based on a fair depletion charge."

"Since the solution of the problem depends upon the independent companies being able to secure a source of recoverable anthracite at a price which compares favorably with the depletion charge of the anthracite companies operating land which they own in fee, it is proposed that a sliding or graduated tax be levied on the gross income from anthracite royalties, and paid by the owners of the recoverable anthracite sold on a royalty basis. It is proposed that the rate of tax be one per cent on gross income from royalties, where the royalty charges per net ton are not in excess of two times the assessed value per net ton of the recoverable anthracite; and that the tax be graduated so as to reach a total of 75 per cent, where the royalty rate per net ton is ten times or more the assessed value per net ton of recoverable anthracite."

"Such a tax on gross income from royalties would create a situation under the anthracite royalty rates would tend to adjust themselves to a rate more nearly equal to reasonable depletion charges, and thereby stabilize the costs for recoverable anthracite during the interim of 25 years until the anthracite reserves acquired by the Commonwealth of Pennsylvania are available to the operating companies requiring recoverable anthracite."

### Peoria Rocket Now in Service

The Peoria Rocket of the Chicago, Rock Island & Pacific was placed in service on September 19 between Chicago and Peoria on a schedule of two round trips daily.

### R. B. A. Dinner

The Railway Business Association will hold its annual meeting and dinner at the Hotel Stevens, Chicago, on Thursday, November 18. The dinner will be held at 7:15 P. M., preceded by a reception at 6:45. The annual meeting and luncheon will be held at 1 o'clock.

### Express Agency Reports Continued Traffic Rise

Railway Express Agency traffic in July reached 9,757,901 shipments, an increase of almost a million as compared with July of last year, or a rise of 5.26 per cent in total volume. This is the 43rd consecutive month that monthly increases have been reported since inauguration of the agency's traffic-building and selling policy in 1933.

### "Daylight" Carries 123,763

A total of 123,763 passengers were carried on the two daily trains comprising the "Daylight" between San Francisco and Los Angeles during the 160 days from March 21, when it was inaugurated, to August 28. The 100,000th person to buy a ticket, Miss Patricia Robson, boarded the train on August 4 and was presented with a rawhide traveling bag.

### Milwaukee Employees Make Tour of Inspection

In order to acquaint themselves with the facilities of the company for which they work, more than 300 employees of the Chicago, Milwaukee, St. Paul & Pacific made an educational and inspection tour of the railroad's car and locomotive shops at Milwaukee, Wis., on September 19. The party, including many junior employees who had not previously traveled on their railroad, was carried in special coaches attached to regular trains. Shop foremen acted as guides. Camera fans in the group will enter pictures taken on this trip in an amateur photo contest sponsored by the railroad's employee Booster club.

### Locomotive Speed Indicators

A derailment of an express passenger train at Sleaford North Junction on the Lincoln-Spalding line of the London & North Eastern Railway of England on February 15, was discussed by Col. A. C. Trench in a report recently made to the Minister of Transport. The engineman was held mainly responsible for the derailment, the inspector indicating that he had probably over-estimated the degree of reduction of speed effected by his brake application. Among other things he said:

"But speeding up, which has had to be adopted in recent years and is likely to continue, has modified the situation owing to the increasing difficulty in judging correctly a moderate or low speed after an abrupt reduction from a much higher speed, while at the same time, if the normal running speeds on straight and open line

are increased, it is the more important to observe and obey the restrictions imposed for safety reasons at special places. The provision of speed indicators on locomotives which have to operate high-speed trains is a matter which merits the serious consideration of the companies and one likely to afford material assistance to drivers."

### Enthusiast Activities

The Philadelphia, Pa., division, Railroad Enthusiasts, Inc., will hold its next meeting on Friday, October 1, in room 528, Pennsylvania Broad Street suburban station. The program has been entitled "Erie Railroad Night" and H. T. Young, Erie passenger agent, Philadelphia, Pa., will act as host. Representatives of the Erie will discuss various phases of their work.

### Pacific Northwest Board Meeting

The twelfth annual and thirty-seventh regular meeting of the Pacific Northwest Advisory Board will be held at Spokane, Wash., on September 29. Amendments of freight demurrage rules, simplification of freight tariffs, legislation affecting transportation and proposals of more profitable alternative crops for Pacific Northwest farm lands will be given consideration. Charles Donnelly, president of the Northern Pacific, will be the principal speaker.

### Southern Boosts "Furniture Week"

In line with the opening of National Furniture Week on September 24, the Southern has recently published a four-page leaflet tracing briefly the history of furniture making in the South from colonial days, illustrated by photographs of representative furniture pieces turned out in southern factories. The text of the publication points out that more than 300 furniture manufacturing plants are located along lines of the road and pledges continued support for the industry.

### Gathering Pension Data

Murray W. Latimer, chairman of the Railroad Retirement Board, has issued to railroads and other employers subject to the Railroad Retirement Act a letter of instructions to facilitate the preparation of returns on Form AA-2 which the board has devised to obtain verification of the service and compensation claimed by applicants for annuity.

Generally speaking it is the purpose of Form AA-2 to secure a record of five facts as follows: (1) The number of months of compensated service; (2) the compensation in each month in the period 1924 to 1931 in which service was rendered for compensation and after February 29, 1936, if the applicant is to be adjudicated under the 1935 act, or after December 31, 1936, if the 1937 act is applicable; (3) the date of birth; (4) whether or not rights have been relinquished, and if so, when; (5) employment status on August 29, 1935.

The letter discusses in detail the board's requirements in connection with each of the foregoing, and closes with the suggestion that it be made the basis for the preparation of instructions to be issued to



members of employer organizations who are engaged in the preparation of the reports involved.

### "Roomette" Rates—A Correction

The fare for single occupancy of a section in the new "roomette" cars now placed in experimental operation by the Pullman Company was erroneously quoted in an announcement in the *Railway Age* of August 28, page 290, as being 150 per cent of the standard lower berth rate. The roomette fare has actually been set at a figure identical with that for single occupancy of a standard Pullman section, which is the lower berth fare plus one-half of the upper berth fare.

### Muhlfeld Sees Huge Savings— A Correction

In the last paragraph of the item "Muhlfeld Sees Huge Savings" on page 350 of the September 11 issue of the *Railway Age* it is stated that "Mr. Muhlfeld also suggests that it would aid in the financing of replacements if sums charged to depreciation and retirements were set aside in cash in banks when accrued on the books." This should have read "Mr. Muhlfeld suggests that it would aid in the financing of additions and betterments . . ." rather than in the financing of replacements.

### Status of Crossing Program

The latest statement showing the status of the federal government works program grade crossing projects reveals that as of August 31 work had been completed on 1,356 new separations, 255 reconstruction jobs and 300 projects involving protection by signals or otherwise. This completed work cost an estimated \$112,245,858, of which \$110,067,576 was supplied from works program funds.

Involved in projects under construction as of August 31 were 544 new separations, 97 reconstruction jobs and 368 protection projects. These will cost an estimated \$73,195,657, of which \$70,256,505 will be supplied from works program funds. Remaining projects approved for construction are expected to cost \$10,011,316, of which the works program funds will provide \$9,104,705; these approved projects include 109 new separations, 18 reconstruction jobs and 353 protection projects.

### Greyhound Seeks to Acquire Buckeye Stages

The Greyhound Corporation has applied to the Interstate Commerce Commission for authority to acquire a controlling interest in Buckeye Stages, Inc., a motor bus operator with routes principally in Ohio. Accompanying applications of Pennsylvania Greyhound Lines and Central Greyhound Lines, affiliates respectively of the Pennsylvania and the New York Central, seek authority to make certain rearrangements of their routes with those of Buckeye.

Greyhound Corporation proposes to pay \$300,000 in cash for 13,560 shares or 60 per cent of Buckeye's common stock. Pennsylvania Greyhound would trade even its route between Cleveland, Ohio, and Cincinnati for Buckeye's Pittsburgh, Pa.-

Detroit, Mich., route; and Central Greyhound would pay \$25,000 for Buckeye's Ohio routes between Cleveland and Oak Harbor, and between Port Clinton and Marblehead.

### Hearings on Minimum Coal Prices

The National Bituminous Coal Commission will begin hearings at Washington, D. C., September 27 on co-ordinated minimum prices and classifications to be set up under the code provisions of the Guffey Coal Act. The initial hearing will deal with the Appalachian fields, while those dealing with western fields are scheduled for October 7.

This commission has recently held a series of hearings on applications of "captive" mines controlled by railroad affiliates for exemption from the code. Included were mines of Chicago & North Western, Chicago, Rock Island & Pacific and Seaboard Air Line subsidiaries.

### Railway Surgeons Meet at Chicago

The forty-eighth annual meeting of the American Association of Railway Surgeons was held at Chicago on September 20-22. The congress this year was in joint session with the Surgical Association of the Chicago, Milwaukee, St. Paul & Pacific, the Surgical Association of the Chicago, Rock Island & Pacific, the Surgical Association of the Illinois Central, the Chicago, Burlington & Quincy Surgeons, the Chicago & Eastern Illinois Surgeons, the Chicago & North Western Surgeons and the Pennsylvania Surgeons. Consequently, the program was arranged so that each of these groups participated in it. The program included papers and discussions on 24 subjects relating to surgery. Forty-seven doctors from railroads, hospitals, universities and private practice participated.

### A. S. M. E. To Hold Fall Meeting at Erie, Pa.

Ten professional divisions are cooperating with the Erie local section of the American Society of Mechanical Engineers in preparation for the first fall meeting of the society to be held at Erie, Pa., October 4-6. The program includes technical sessions covering power, railroads, machine-shop practice, fuels, management, processing, petroleum, instruments, and cutting of metals; a banquet, a luncheon, and a number of visits to the more important plants at Erie. At the Railroad Session on Monday morning, October 4, H. W. Gouldthorpe will discuss "The Flexible Mounting of Diesel Engines for Transportation Service," and J. V. B. Duer, chief electrical engineer, Pennsylvania, will discuss "The Place of Railroads in Modern Transportation." At the machine-shop practice session on the same morning a paper on "Machine-Shop Practice Pertaining to Arc Welding and Steel Fabrication" will be presented by A. C. Cochrane. At the fuels session Tuesday morning, October 5, H. C. Hottel and J. M. Stuart will discuss "The Combustion of Pulverized Coal." At the joint railroad and machine tools session, also on the morning of October 5, F. M. Graham will

present a paper entitled "Experience with the Dynamic Effect of Locomotives and Cars on Railroad Tracks."

### S. A. L. Offers Free Side-Trips

The Seaboard Air Line has recently inaugurated a new offering to through passengers whereby holders of round-trip tickets covering journeys between Jacksonville, Fla., and points north, and stations between West Palm Beach and Miami, on the south, may take advantage of side-trips to points on Florida's west coast without extra charge. The destinations available through the free "off-shoot" journeys, all of which are reached by branches from the main line at Tampa, are Arcadia, Boca Grande, South Boca Grande on the branch from Welcome Junction and Palmetto-Ellenton, Brandenton-Manatee, Sarasota and Venice on the Venice branch. These side-journeys formerly cost from \$1.50 to \$2.50 round-trip from Tampa.

### C. V. Transportation Co.— A Correction

In an article outlining motor transport matters contained in annual reports, appearing in the *Railway Age* of August 28, page 283, through a misunderstanding, the Central Vermont Transportation Company was reported as a motor transport subsidiary. Actually it owns and operates a freight boat service between New York and New London, Conn., providing a feeder service for its parent company, the Central Vermont, at the latter point. The Canadian National holds \$50,000 of the \$200,000 total stock outstanding through its subsidiary, the Central Vermont. The remaining 75 per cent of the stock is in the hands of outside interests.

### Monon Reorganization Hearings Are Begun

The initial hearing on the reorganization plan of the Chicago, Indianapolis & Louisville began before the Interstate Commerce Commission on September 21. The greater part of the session was occupied by H. R. Mardorf, treasurer, and R. G. Streit, comptroller of the road, who introduced upwards of 150 exhibits which traced the company's corporate and financial history. The net railway operating income for 1937 was forecast at \$468,955 as compared with \$500,440 for last year. Net railway operating income for 1938 was forecast at \$367,733; for 1939, \$956,268; for 1940, \$1,933,963; and for 1941, \$2,545,016.

The hearing was adjourned on September 22, until December 7. Several interveners wanted an 120-day adjournment, but Examiner Wilkinson refused the request, asserting that the commission does not look with favor on long delays in these reorganization proceedings.

### Chicago Exposition to Feature Power Engineering

The Chicago Exposition of Power and Mechanical Engineering will be held at the International Amphitheatre in Chicago, October 4 to 9. At the exposition, which is in charge of Charles F. Roth, president of the International Exposition

Company, whose permanent headquarters are at Grand Central Palace, New York, machine and power developments of the Midwest will be particularly displayed. The exhibit will feature generating equipment, including Diesel engines, stokers and other appurtenances for the generation of steam; boiler plant accessories; refractories (brick, cements and packings); boiler water treatment; piping, valves, fittings and pumps; transmission equipment; materials-handling equipment; machine and hand tools. The electrical section of the Chicago show will feature motor control apparatus, valve control magnetic clutches, electric hoisting units, mercury switches, neon glow lamps, relays, dimmers, rheostats, resistors and electric heating units.

### H. S. Airbrake Shown at N. Y. Science Museum

A complete train brake system of the electro-pneumatic high-speed type developed for use on fast streamliners has recently been installed in the New York Museum of Science and Industry, located in Rockefeller Center, New York City, as a further development in the "do it yourself" exhibit.

Visitors who have yearned to run a real train may experience something of a thrill by pushing a lever controlling the exhibit mechanism. The latter controls a miniature train, modelled after the type which use this type of brake, which, when the controls are set, moves along a scale track. Below this, a working model of the air brake system in nearly life size operates in standard sequence, illustrated by illuminated arrows.

In addition to the brake device a complete diagram of the mechanism of the locomotive unit in a typical Diesel-electric streamliner has recently been located in the comprehensive railroad exhibit of the museum.

### Fourth Section Relief

Fourth section relief in connection with coal rates has been granted by the Interstate Commerce Commission in three recent decisions. The rates involved are those on fine coal in carloads from mines in Alabama, Kentucky, Tennessee and southwest Virginia to Charleston, S. C., and Savannah, Ga., and Brunswick; coal and coal briquettes in carloads from mines on new extensions of the Norfolk & Western in Buchanan County, Va., to points in Official and Southern territories; and anthracite in carloads from points in Pennsylvania to Rutland, Vt.

Other recent fourth-section decisions authorize relief in connection with rates on fresh and green vegetables in carloads from Louisiana stations west of the Mississippi river to destinations in Canada; grain and grain products in carloads from Indiana points on the Effner branch of the Pennsylvania to Chicago; window glass in carloads from Fort Smith, Ark., Okmulgee, Okla., Henryetta and Shreveport, La., and on rough rolled glass in carloads from Okmulgee to points in Southern territory; and brick and related articles in carloads in Official territory.

In another case relief was denied in connection with rates on cordage in carloads

from New Orleans, La., and Port Chalmette to certain points in central and western trunk-line territory.

### I.C.C. Begins Alleghany Corp. Investigation

The Interstate Commerce Commission, on September 21, began the first of its hearings on the investigation of the Chesapeake and Alleghany Corporations. The session, which was presided over by Commissioner Mahaffie and Examiner Mohundro, was of very short duration and was devoted entirely to the introduction of about a dozen voluminous exhibits. These exhibits were introduced into the record by I.C.C. Attorney William J. Walsh, who is conducting the case. They consisted mainly of articles of incorporation of the two corporations and various instruments of sale which were used to effect the transfer of the title of the Mid-America Corporation holdings to Messrs. Young, Kolbe, and Kirby, who have recently acquired control of the Chesapeake and Alleghany Corporations.

After an announcement by Mr. Walsh that the commission had a lot more investigating to do, Commissioner Mahaffie adjourned the hearing to an indefinite date which would be agreed upon by counsel.

### New Haven Host to 625 on Camera-Cycle Excursion

Approximately 625 New Yorkers participated in the New York, New Haven & Hartford's combined excursion for amateur photographers and bicyclists operated on September 19 from New York to Saybrook, Conn., located on the shore line of the road at the mouth of the Connecticut river. This is reported to be the largest patronage ever accorded a sports or hobby excursion, with the exception of winter ski trips. Cyclists were given detailed maps presenting directions for a 16.4-mile round trip tour to Essex and the surrounding country. Photographers and sketchers were granted the opportunity of gathering their material in groups supervised by selected experts in the two fields.

The New Haven will operate a train for cyclists only to Canaan, Conn., the original destination for the road's bicycle trains, on September 26 and a combined "fold-boat" and cycle train to Falls Village and Canaan on October 1. The fold-boat was described in the *Railway Age* for May 15, page 839.

### Gormley to Address Atlantic Board at Annual Meeting

The Atlantic States Shippers' Advisory Board will hold its 44th regular meeting in the Hotel Robert Treat, Newark, N. J., October 6 and 7. The meeting of the freight loss and damage prevention committee will be held during the morning of October 6, while the executive committee and the railroad contract committee will meet jointly in the afternoon.

At the open session the morning of October 7, M. J. Gormley, executive assistant to the president, Association of American Railroads, will speak on "Possible Legislative Interference with Efficient and

Economical Operation of Railroads." The luncheon speaker will be Colonel A. B. Barber, manager, transportation and communication department, United States Chamber of Commerce, who will deliver an address on "Our Responsibility Toward Transportation." The luncheon will be attended jointly by members of the board, the Chamber of Commerce of Newark, the Traffic Club of Newark, the Railroad Club of Newark and the New Jersey Industrial Traffic League.

In the afternoon session, a forecast of general business conditions for the fourth quarter of 1937 by reports from individual commodity committees covering 40 major commodities produced in Atlantic states territory will be presented by C. J. Goodyear, traffic manager, Philadelphia and Reading Coal and Iron Company, and second alternate general chairman of the board. W. C. Kendall, chairman, Car Service Division, Association of American Railroads, will present a summary of national transportation conditions, supplemented by reports of the individual railroads in Eastern territory. A. P. Stevens, district manager, Car Service Division, A.A.R., will discuss local railroad service problems in the board territory.

### Steam Locomotive Development Committee Appointed

Relatively few changes in the personnel of standing committees of the A.A.R. Mechanical Division are shown in Circular No. D.V.-925, recently issued by the secretary's office, with the exception of the appointment of a special committee on "Further Development of Reciprocating Steam Locomotives." The membership of this committee includes: Chairman D. S. Ellis, chief mechanical officer, Chesapeake & Ohio, Cleveland, Ohio; Vice-Chairman W. I. Cantley, mechanical engineer, Lehigh Valley, Bethlehem, Pa.; W. R. Hedeman, assistant to chief of motive power and equipment, Baltimore & Ohio, Baltimore, Md.; J. E. Davenport, assistant chief engineer of motive power and rolling stock, New York Central, New York; W. R. Elsey, mechanical engineer, Pennsylvania, Philadelphia, Pa.; J. M. Nicholson, acting mechanical superintendent, Atchison, Topeka & Santa Fe, Topeka, Kan.; Lawford H. Fry, railway engineer, Edgewater Steel Company, Pittsburgh, Pa.; W. E. Woodward, vice-president, Lima Locomotive Works, Inc., New York; H. Glanzer, vice-president, Baldwin Locomotive Works, Philadelphia, Pa.; J. B. Ennis, vice-president, American Locomotive Company, New York; E. G. Bailey, vice-president, Babcock & Wilcox Company, New York; and Edward C. Schmidt, professor of railway engineering, University of Illinois, Urbana, Ill.

### M. P. Would Merge D. & R. G. W. and Western Pacific

Declaring that under the present plan of reorganization of the Denver & Rio Grande Western and the Western Pacific its interests might be jeopardized, the Missouri Pacific, on September 18, asked the Interstate Commerce Commission to reconsider its former petition to intervene in the reorganizations of these two carriers and



allow it to file a plan of reorganization which would protect its interests. The petition pointed out that the Missouri Pacific, the Denver & Rio Grande Western and the Western Pacific had gone to considerable expense to develop and publicize their transcontinental route to the Pacific Coast. It went on to state that the Missouri Pacific feared the control of the Western Pacific might pass into hands which were inimical to its interests. The M.P. asserted that the transcontinental route was of vital importance to it and that a change in control would cost the road approximately \$500,000 in annual revenues.

The petition also asked the commission to allow it to file a new plan of reorganization which would provide for the consolidation of the Denver & Rio Grande Western and the Western Pacific and the preservation of the Missouri Pacific's interest in these two roads. This plan of consolidation has been publicly supported by Chairman Jesse Jones of the Reconstruction Finance Corporation, which holds a substantial interest in each of the three roads involved. The brief contended that the consolidation of the two carriers would result in savings in operating expenses of \$750,000 annually, which would constitute an actual increase in the earning power of the two roads.

The commission had previously denied both the Missouri Pacific management and the trustees permission to intervene in the reorganization cases for the purpose of filing the reorganization plans providing for consolidation.

### Club Meetings

The New England Railroad Club will next convene on October 5 at the Hotel Touraine, Boston, Mass. After the dinner, which will be served at 6:30 p. m., F. E. Williamson, president, New York Central, will present an address entitled "How the Railroads Are Searching Out New and Better Methods." Executives of New England roads will be guests at the meeting. It should be noted that the meeting date has been put forward one week, since the regular date, October 12, is a holiday.

A discussion of railroad and highway competition will feature the October meeting of the Society of Automotive Engineers, metropolitan section, on October 14, at the Roger Smith Restaurant, 40 East 41st street, New York. The keynote speech will be presented by Dr. Ernst Esch, professor of motor transport science at the University of Cologne, Germany.

J. M. Fitzgerald, vice-chairman of the Committee on Public Relations of the Eastern Railroads, will be the speaker at the next meeting of the Traffic Club of Baltimore to be held on October 5 at the Renner Hotel, Baltimore, Md. George M. Smith, retired superintendent of the Pennsylvania at Baltimore, will act as toastmaster of the meeting which has been designated "Old Timers or Founders Night."

The Washington (D.C.) Division, Railroad Enthusiasts, Inc., will hold its next meeting on Saturday evening, October 9, in room 1030 of the Transportation Building in that city. Paul T. Warner of the

Baldwin Locomotive Works, Philadelphia, Pa., will speak on "Development of the Various Types of Locomotives."

### Freight Car Loading

Revenue freight car loading for the week ended September 11, totaled 711,299 cars, a decrease of 93,334 cars or 11.6 per cent below the preceding week, due to the Labor Day holiday, an increase of 11,152 cars or 1.6 per cent above the corresponding week in 1936, but a decrease of 254,514 cars or 26.4 per cent below the same week in 1930 which did not contain the holiday. This figure for 1930 will hereafter be given in Association of American Railroads weekly press releases on carloadings, thus making the comparison conform to that which has been used for some time in monthly statements of net railway operating income. The 1930 figure has been added as the A.A.R. believes that it is a more significant one for comparisons. All commodity classifications showed decreases under the preceding week, while all commodity classifications except coal and live stock showed increases over last year. The summary, as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loading			
For Week Ended Saturday, September 11			
Districts	1937	1936	1935
Eastern .....	131,347	135,415	142,756
Allegheny ...	138,504	140,453	130,292
Pocahontas ...	49,597	51,730	53,496
Southern .....	97,713	100,199	97,962
Northwestern.	129,136	110,797	114,783
Central			
Western .....	107,705	102,784	105,925
Southwestern.	57,297	58,769	54,572
Total Western Districts ..	294,138	272,350	275,280
Total All Roads .....	711,299	700,147	699,786
Commodities			
Grain and Grain Products .....	31,983	27,718	43,803
Live Stock....	14,207	17,704	17,724
Coal .....	118,207	121,195	138,457
Coke .....	9,427	9,007	6,444
Forest Products .....	33,744	31,878	31,254
Ore .....	71,589	51,779	35,649
Merchandise			
L.C.L. ....	147,107	149,173	164,383
Miscellaneous.	285,035	291,693	262,072
September 11.	711,299	700,147	699,786
September 4..	804,633	765,131	591,941
August 28....	787,373	754,097	680,848
August 21....	781,247	735,476	625,774
August 14....	777,382	736,578	614,005

Cumulative Total, 37 Weeks. 30,371,834 24,576,443 21,775,329

*In Canada.*—Car loadings for the week ended September 11 totaled 54,849, a decline of 6,012 from the previous week, and of 3,663 from the corresponding 1936 week, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 11, 1937 .....	54,849	20,572
Sept. 4, 1937 .....	60,861	22,489
Aug. 28, 1937 .....	57,245	22,153
Sept. 5, 1936 .....	58,512	22,083
Cumulative Totals for Canada:		
Sept. 11, 1937 .....	1,762,006	961,215
Sept. 5, 1936 .....	1,616,617	827,095
Sept. 7, 1935 .....	1,550,611	761,419

### Equipment Installed

New freight cars installed in service by the Class I railroads in the first eight

months this year totaled 49,327, the largest number for any corresponding period since 1930, according to the Association of American Railroads. In the same period last year, 20,588 new freight cars were put in service, and 2,819 in the same period two years ago; for the first eight months of 1930 the total was 64,418.

Of the new freight cars installed this year, coal cars totaled 25,639; box cars, including both plain and automobile, 18,590; refrigerator cars, 3,717; flat cars, 1,173; stock cars, 150; and miscellaneous cars, 58.

Class I roads in the eight months of 1937 also installed 226 new steam locomotives and 38 new electric and Diesel locomotives, the number of new steam locomotives put in service being also greater than for any corresponding period since 1930. In the same period in 1936, 42 new steam locomotives and 20 new electric and Diesel locomotives were installed, and 27 steam locomotives and 101 electric locomotives, in the same period in 1935.

New freight cars on order on September 1 totaled 31,419, compared with 22,354 on September 1, last year, and 7,240 on September 1, 1935. New steam locomotives on order on September 1 totaled 252, compared with 43 on the same date one year ago, and nine on the same date two years ago. New electric and Diesel locomotives on order on September 1 totaled 37, compared with 17 last year and three two years ago.

New freight cars and locomotives leased or otherwise acquired are not included in these figures.

### Baldwin Publishes Survey of Motive Power Needs

The Baldwin Locomotive Works has recently issued a 76-page study entitled "The Motive Power Situation of American Railroads," which, on the basis of statistics compiled largely by the Federal Co-ordinator of Transportation and the Interstate Commerce Commission, establishes the contention that the purchase of new motive power, as opposed to rehabilitation of existing rolling stock, is essential to the continued health of the American carriers. Upon a groundwork of history of rail traffic since 1900 and a presentation of present-day locomotive inventories, the study concludes that about 94.4 per cent of all motive power measured numerically and 91.2 per cent by tractive power is "more or less obsolete."

Stepping to its second chief topic, the cost of locomotive maintenance and operation, the study points to statistics and conclusions published in reports of the Federal Co-ordinator of Transportation defining the economic life of a locomotive and purporting to prove that increased maintenance costs do not warrant the continued use of motive power beyond these defined limits. Further statistics point to the advantages of the speed, economy, and power of the modern locomotive, with emphasis on the necessity of an adequate locomotive replacement program and the importance of writing adequate depreciation charges in capital accounts.

Further quotations support the contention that, although due credit must be given



to the virtue of Diesel power, the steam locomotive must "continue to be the mainstay of railroad operation for the indefinite future." Complete tables and graphs supporting the thesis follow.

### N. E. Board Sees 3½ Per Cent Increase in Loadings

A 3½ per cent increase in New England carloadings for the last quarter of this year over the figure for the same period of 1936 is forecast in a summary presented to the New England Shippers' Advisory Board by I. S. Boyle, general secretary, at the 27th regular meeting of the organization, on September 17, at the Hotel Taft, New Haven, Conn. Of the commodity committees reporting, 26 forecast increases, six decreases and eight others reported no appreciable change. The largest outstanding increases in heavy loading commodities in this territory are expected to be in iron and steel 35 per cent, machinery 25 per cent, building materials 12 per cent, lumber 5 per cent, paper 5 per cent and miscellaneous pumps, tanks and boilers 15 per cent.

At the meeting, W. H. Day, manager of transportation of the Boston Chamber of Commerce, and J. W. Smith, vice-president and general manager of the Boston & Maine, discussed the legislation affecting railroads which is held open for consideration in the next Congress. J. H. McCann of the Associated Industries of Massachusetts, who is also chairman of the territorial committee of the board, presented a detailed report of the accomplishments toward simplification of tariffs and elimination of some of the unnecessary material contained in them.

Other reports included a summary of traffic conditions in the United States presented by Chairman W. C. Kendall of the Car Service division, and on account of the accomplishments of the Eastern Claim Conference in its relations with shippers, given by F. G. Love, superintendent of property protection, New York Central, and R. F. Bohman, general traffic manager of Heywood-Wakefield Company.

### N.L.R.B. Certifies Brotherhood of Railroad Trainmen on Nine Greyhound Lines

The National Labor Relations Board has certified the Brotherhood of Railroad Trainmen as the exclusive bargaining agency for bus drivers of nine units of the Greyhound system, and ordered elections among all employees of three other constituent companies to determine the appropriate organization for collective bargaining desired by the workers.

On the basis of comparison of membership lists with company payrolls, the Board certified that the Brotherhood had authorizations from a majority of the bus drivers of the following companies: Pennsylvania Greyhound Lines, Inc., and subsidiaries; Central Greyhound Lines, Inc., and subsidiaries; Eastern Greyhound Lines, Inc., of New England; Illinois Greyhound Lines; Canadian Greyhound Lines, Ltd.; Ohio Greyhound Lines; Capitol Greyhound Lines and subsidiaries; Southeastern Management Company, and Richmond Greyhound Lines, Inc.

Elections will be held within 20 days from September 14 among all employees of the Atlantic Greyhound Lines, Inc., and subsidiaries of Charleston, W. Va.; Southwestern Greyhound Lines, Inc., and subsidiary of Fort Worth, Texas; and Southeastern Greyhound Lines (including Southeastern Greyhound Lines of Kentucky, Southeastern Greyhound Lines of Tennessee, and Southeastern Greyhound Lines of Alabama) of Lexington, Ky.

In the Atlantic election, the poll will be conducted among all employees on the payroll as of May 31, including bus drivers, and temporary dispatchers who hold seniority rights as bus drivers, to determine whether they desire to be represented by the B. of R. T. or the Interstate Motor Transportation Employees Union, Inc., or neither.

The election set-up in the Southwestern case is similar to that in the Atlantic, except that the Greyhound Employees Union is the contestant claiming jurisdiction over drivers, maintenance and other employees. Employees on the rolls as of May 25 will vote, including supervisory employees. In the Southeastern election, the choice will lie between the B. of R. T. and the Consolidated Coach Operators Association, or neither. Only bus drivers on the payrolls as of May 31 will participate in this poll.

### Pension Payments and Income Taxes

The latest issue of the Internal Revenue Bulletin publishes two recent rulings of the Bureau of Internal Revenue on questions relating to the application of income tax laws to payments and deductions under the railroad retirement plan. The first holds that annuities or pensions paid by the Railroad Retirement Board pursuant to the provisions of the Railroad Retirement Act of 1937 are not subject to income tax in the hands of the recipients; and the second deals with practices to be observed by the Bureau in the treatment of amounts accrued and claimed as deductions in the income tax returns of the carriers for 1936 under the original Carriers Taxing Act of 1935.

The ruling on the exemption of annuities from income tax follows a previous one which had been made for payments under the 1935 Retirement Act. With reference to the treatment of deductions made by the carriers, it is stated that the following practice will be observed by the Bureau:

"(a) In those cases in which the carriers' excise tax was paid by the carrier prior to the enactment of the Carriers Taxing Act of 1937, the deduction claimed therefor in the income tax return of the carrier for the calendar year 1936 will be allowed, and refunds of such tax will be required to be included in the gross income of the carrier for the year in which the refund is made.

"(b) In those cases in which the carriers' excise tax was not paid to the collector, and the carrier was not a party to the suit under the Carriers Taxing Act of 1935, or did not otherwise contest liability for such tax, the deduction claimed therefor in the income tax return of the carrier for the calendar year 1936 will also be allowed, and the amount of the tax will be

included in the gross income of the carrier for the year in which the liability for the tax was extinguished, that is, for the calendar year 1937.

"(c) In those cases in which the carriers' excise tax was not paid to the collector, and the carrier was a party to the suit under the Carriers Taxing Act of 1935, or otherwise contested liability for such tax, the deduction claimed therefor in the income tax return of the carrier for the calendar year 1936 will be disallowed, and no adjustment of the income tax return of the carrier for the calendar year 1937 will be made on account of the extinguishment of the carrier's liability for the tax."

### C. N. Deficit Held Due to Role as Pioneer Developer

"If the average traffic density of the system should increase 40 per cent over the present figure of \$8,000 per mile per year, I can confidently predict that the net revenue from operation would be sufficient to pay the fixed charges on the property," S. W. Fairweather, director of the Canadian National's bureau of economics, informed members of the Rotary Club of Montreal in an address on September 21, in which he held that the deficit accruing from operation of the Canadian National is not a fixture but a feature of the country's development period. As settlement and development increase along the pioneer lines, he asserted, the average traffic per mile will increase and the net revenue of the system for interest charges will increase with it at even a more rapid rate, since additional business can be done on a thin traffic line at very little additional expense.

"It is a matter of geography and finance," Mr. Fairweather insisted. "Canada's natural resources and wealth production, though very large, are widely scattered. The total traffic of the Canadian National is large, but the average traffic per mile is low. The C.N.R. in larger degree than other systems furnishes rail service to frontier communities. Canada could not be the country she is, with a high per capita wealth production, without such frontier development of her forests, mines and farmlands. That development cannot take place without railway service; neither can raw products stand freight charges sufficient to pay the cost of building, equipping and operating pioneer lines. The wealth of the country increases, but the railway must show a deficit unless subsidized through the development period, however efficient it may be in operation."

Not desiring to over-simplify, however, the speaker pointed to other factors underlying the system's lack of earning power, which he claimed dated back to the Confederation. In summary he called them "all the mistakes of private ownership, the failure of which brought the C.N.R. into being."

Presenting a detailed description of the part the road played in the life and well-being of the country, Mr. Fairweather pointed out that the mining development which had so revolutionized the economic outlook of Canada in the past decade had nearly all occurred along the lines of or

in the territory tributary to the Canadian National Railways; that the bulk of Canadian pulpwood and the larger part of perishable foodstuffs are hauled by this agency; that 65 per cent of the interchange with the United States roads at the frontier is handled by the system.

### Blanning Named Director of I.C.C. Motor Bureau

Wendell Y. Blanning, assistant director of the Interstate Commerce Commission's Bureau of Motor Carriers, has been appointed director to succeed John L. Rogers, who took the oath of office as a member of the commission on September 16. Mr. Rogers, who succeeds Hugh M. Tate, was confirmed by the Senate on August 17 but delayed taking over the work until he had disposed of certain matters in the Bureau of Motor Carriers. His photo-



(c) Harris & Ewing

Wendell Y. Blanning

graph, together with a sketch of his career, appeared in the *Railway Age* of August 7 at the time of his appointment by President Roosevelt.

Mr. Blanning, who has served as assistant director of the Bureau of Motor Carriers since its formation in 1935, was born on November 13, 1888, in Pennsylvania, and was graduated from Dickinson College, Carlisle, Pa., in 1912. From that time until 1923 he was clerk of the Pennsylvania State Law Library, meanwhile having been admitted to the bar of the Supreme Court of Pennsylvania in 1916. In 1924 Mr. Blanning became assistant counsel to the Public Service Commission of Pennsylvania, remaining in that position, with one year as acting counsel, until 1928, when he entered the private practice of law at Harrisburg, Pa. Two years later, in 1930, Mr. Blanning returned to the Public Service Commission of Pennsylvania as director of its Bureau of Public Convenience—the bureau which administers Pennsylvania law and regulations applicable to motor carriers. He remained in this position until August, 1935, when he was appointed secretary of the Pennsylvania commission, a position which he resigned the following month to become

assistant director of the I.C.C. Bureau of Motor Carriers, in charge of its field force.

### International C. of C. Publishes Reports on Transport

The recently-issued official report of the proceedings of the ninth congress of the International Chamber of Commerce, which met in Berlin, Germany, June 28 to July 3, and was attended by 1,600 business leaders from 40 countries, contains a digest of committee reports, chamber discussions, and resolutions concerning railway problems and air-rail co-ordination. The topics presented to the congress by the standing committee on railroad transport, which were summarized in a report on the antecedent meeting of the committee appearing in the *Railway Age* for May 15, page 839, are concerned largely with betterment of international transport agreements within continental Europe, and the resolutions passed by the chamber center on proposed amendments to the so-called Berne Conventions, or International Convention on the Carriage of Goods by Rail. These include a proposal for the establishment of uniform freight tariff nomenclature, reciprocal baggage privileges, and other strictly European matters.

Adopting a wider field, the committee on air-rail co-ordination, presented several reports based upon practices in all of the major countries and attempted to establish a body of principles upon which future transport policies might rest. Most important of these was the recommendation that the railroads set up expedited services between airports and railway stations under a joint ticket arrangement; that agreements be concluded between the air and railroad companies providing for the issuance of optional tickets valid, over certain routes, for passage by either means of transport; that, wherever it might prove efficient, joint routes be established and combined rail and air timetables established. As regards the enactment of a single body of governmental regulation for both forms of transport, the chamber opposed such unification on the grounds that each mode of transport requires different legal treatment.

A previous report presented by R. Henning, chief inspector and assistant to the director-general of the Belgian National Railways, to the standing committee on air-rail co-ordination at a meeting held in Paris, France, April 13, points out a number of inequalities between air and railway regulation, asserting that in no country is the air carrier burdened with legal restrictions comparable to those imposed upon the rail carrier. It argues that no air transport company incurs the definite obligation to carry all classes of goods, as do the rail carriers; that in Europe, at least, under the Warsaw Convention (international air-transport agreement), there is no restriction on the granting of special rate contracts by air companies and no compulsion to publish tariffs; that the liability of air carriers as to damages to goods and injuries to passengers has narrower limits than that of the railroads.

In a special section of the report dealing with American practices, Mr. Henning asserts that while the two forms of transport

are on a more equal footing in the United States, nevertheless special subsidies in the form of mail contracts and safety equipment services are granted to the air companies. In illustration of air-rail co-ordination here, he points to the air services rendered by the Railway Express Agency.

### Over 40 Legionnaires in a Car.—But No Horses

The Eastern roads carried a good proportion of the out-of-town members of the American Legion attending their annual conclave in New York, the total attendance of which, 350,000 members, is said to be the largest in the history of the organization. And while American railroad coaches, considerably more than "40 homes" and rarely provide accommodations for "8 chevaux" the members of extra "troop trains" entering New York terminals and the pressure of uniformed veterans in station concourses brought back to many the days of crowded trains and transports during war days. Although a large portion of the legion men traveling by rail rode as regular passengers and cannot, therefore, be estimated as to number, the volume of blue-and-gold-uniformed legionnaires entering the metropolis necessitated, in addition, the operation of special trains by all of the major roads entering the city, the traffic of which has been computed.

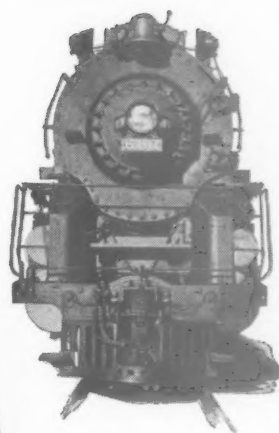
The Pennsylvania transported between 5,000 and 10,000 into the city, necessitating over 53 special train and car movements. The largest of these included transportation of 400 members from Chicago on "The Magic City Special" and 200 members of the Franklin post and band from Columbus, Ohio. The Baltimore & Ohio carried a crowd of Legionnaires estimated at 6,000 from all parts of its system. Especially large delegations hailed from Baltimore, Md., Washington, D. C., Chicago, and Milwaukee, Wis. Carrying most of its special passengers from upper New York state points, the Delaware, Lackawanna & Western carried between 1,500 and 2,000 members through its Hoboken, N. J., terminal. Their transportation required 5 special trains and an unestimated number of extra coaches on regular runs.

The New York Central carried a total of 10,000 legionnaires and members of their families into New York, requiring the movement of 29 special trains, 2 of which were routed over the West Shore route for stop-over at the Military Academy at West Point, N. Y. In addition to those accommodated on the specials, 35 special parties of over 25 members each took advantage of the reduced coach fares offered to group travelers. The Central was also represented in the proceedings of the week by a large model of its famous old "999" locomotive which hauled the Empire State Express on its record run of 118.5 miles per hour on May 10, 1893. The replica is exact and is mounted on an automobile chassis. Its sponsors are the members of the New York Central System Post 999, of Cleveland, Ohio.

### Time Changes Brings Modifications in Eastern Schedules

Many important changes in eastern train schedules will be effected when clocks in

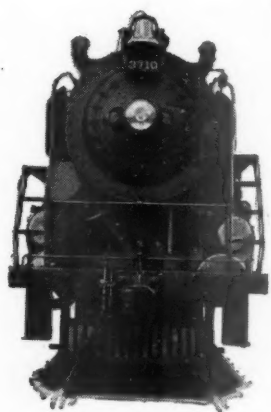
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- lower fuel and water rates.
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urban districts are turned back to standard time on September 26. Not only will the departure time of commuters' and business men's trains be set an hour ahead to conform with the change in working hours, but contractions in journey time will characterize the new schedules of many through runs.

In the Pennsylvania's fleet, the most significant change will be the rearrangement of the eastbound schedules of the Broadway Limited and the General, the two leading Chicago-New York trains of the road, to provide late afternoon departures and morning arrivals for both trains at an interval of one hour and 15 minutes. The Broadway Limited schedule will be changed to leave Chicago at 4:30 p. m., one hour and 30 minutes later than at present, arriving at New York at 10:00 a. m. This will make the Broadway the latest overnight train out of Chicago providing morning arrival in the east. The General, second fastest P.R.R. train from Chicago to the east, will depart at 3:15 p. m., 10 minutes later than at present, reaching New York at 9:30 a. m. The elapsed time of 17 hours and 15 minutes to New York, will be unchanged. Westbound schedules of both trains will, in line with other through trains, be adjusted to the resumption of standard time.

The schedule of the Red Arrow will be advanced, leaving New York at 5:05 p. m., 32 minutes earlier than at present, and arriving in Detroit at 8:00 a. m. Both to and from St. Louis the schedules of the Spirit of St. Louis will be slightly modified. The westbound train will leave New York at 4:55 p. m., 10 minutes earlier than at present, arriving at St. Louis at 12:45 p. m. Eastbound, the departure from St. Louis will be at 12:00 o'clock noon, with arrival at New York at 9:50 a. m., making a running time from and to New York of 20 hours and 50 minutes.

New Haven timetable changes will include the establishment of additional through train service between Boston and Philadelphia, Pa., and a speeding up of a number of through trains. The Hell Gate Express, which has previously operated daily between Pennsylvania station, New York, and Boston, Mass., will now be extended in route to Philadelphia and will be scheduled eastbound to leave New York at 9:55 a. m., with arrival in Boston at 3:00 p. m.

The Mayflower, leaving New York daily at 8:30 a. m., and the Shore Line Express at 4:00 p. m. will each be speeded up five minutes enroute, to arrive at Boston 1:40 p. m. and 9:00 p. m. respectively. The westbound Shore Line Express, leaving Boston 6:35 a. m., will be scheduled under the new timetable to leave at 7:30 and will have a fifteen minute faster schedule, arriving at Grand Central terminal, New York, at 12:40 p. m. The Federal Express from Boston to Washington, D. C. will be speeded up 25 minutes between Boston and New York. The Owl, Boston to New York sleeping car train, will have a 15-minute earlier arrival time in New York at 6:10 a. m.

The principal changes contemplated by the Baltimore & Ohio are the lopping off of half an hour in the time of the Capitol

Limited eastbound between Chicago and Washington, D. C., and 20 minutes westbound between Washington and Chicago and a cut of one hour, 8 minutes, in the schedule of the Shenandoah westbound between New York and Chicago. A new New York-Washington streamliner will be introduced by the new timetable, providing for two streamlined trains between Washington and New York. An improved Royal Blue train will be placed in service while the present Royal Blue equipment will become the Columbian, which in turn will become the Marylander. There will also be added a new train from Philadelphia, Pa., to Chicago, scheduled to make important intermediate stops.

The most radical change in the New York Central time-sheet concerns the Empire State Express, which on October 26 will complete its 46th year of service. Its running time will be shortened, and an entirely new extension in service will be established, linking New York, the present eastern terminus, with Cleveland, Ohio, and Detroit, Mich. Its service between New York and Toronto, Ont., will be continued. The train will leave New York at 9:00 a. m., 30 minutes later than at present, and will run through to Cleveland in 11¼ hours, thereby cutting the time by one hour and 35 minutes. The run to Buffalo will consume 7¾ hours, cutting the time by 25 minutes.

In order to meet the request of patrons desiring a later departure from Cleveland, the schedule of the Mercury will be changed to leave that point at 7:45 a. m., arriving in Detroit at 10:30 a. m., while the schedule for the return trip will remain as at present. The schedule of the Wolverine eastbound between New York and Chicago will be slightly modified to leave Chicago at 1:10 p. m., with arrival in New York at 8:00 a. m. The schedule of the Water Level Limited will be changed to give a later afternoon departure from Chicago at 3:45 p. m., to arrive in New York at 10:00 a. m.

## Capital Needed If Jobs Are to Last

(Continued from page 426)

plies; \$325 for taxes; \$200 for hire of equipment and joint facilities; and \$180 for depreciation of equipment. There remained \$555, which represents the return earned on the \$25,000 investment—about 2½ per cent. Of that \$555, \$355 went for interest on bonds and \$200 for dividends. The interest on bonds means that there is \$8,600 of debt on each \$25,000 unit and that the average interest rate is 4½ per cent.

"One of the most important things for us as employees to understand, and something I firmly believe to be true, is that this plant which we operate is absolutely essential to the conduct of the business and social life of the country. Furthermore, it is rendering a quality of service never before equalled. From the employees' standpoint it is provided without any obligation on our part except that we shall efficiently and honestly apply our-

selves and do well our part of the job of handling it. Those who provide the plant pay for keeping it up, pay the taxes, and make the financial provision for necessary improvements as the occasion arises. They also contribute to pension and unemployment funds for the benefit of the employees.

"Management has at least three definite obligations. The first is to the public because our business is one which must rely wholly on general and voluntary patronage. The shipping and traveling public pay the bills. We must see that charges are not prohibitive, and that the service is the best that can be provided. Failure in this regard would be reflected in loss of traffic, which of course would have an immediate unfavorable effect on all of us. Traffic is the life blood of the business, and its loss would deprive both the owners and the workers of opportunity for maximum employment.

"Then we have an obligation to the employees, to see that their working conditions are well maintained, that wages are sufficiently high to attract capable help, in competition with all of the various other lines of industry, and that our employees work as safely as possible.

"We have also the obligation to the owners of the railroad, both because it is good ethics to meet the financial obligations incurred when capital is invested in the plant which serves the public and gives us employment, and also because it is necessary to do so in order to maintain credit which will encourage investors to let us use their money."

## Board Deplores Transport Waste

(Continued from page 427)

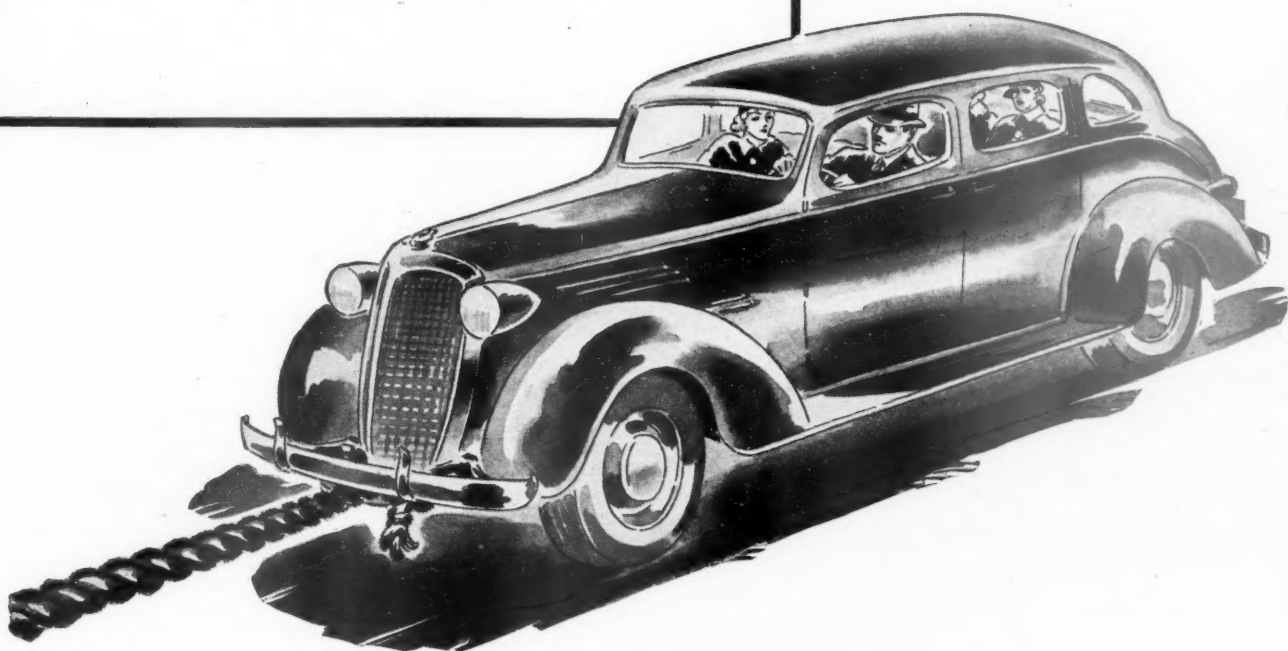
ginning to affect "the national distribution of our urban centers, and even the local pattern and plan of our cities."

Discussing "The Problems of Urban America" the report includes, under the headings "Inadequate Control Over Transport" and "Transportation Terminals," sections which deal in greater detail with the foregoing. In the former connection it is asserted that the principal problem at present "is how to control and manipulate the existing transportation network either to preserve or to reshape the existing national urban pattern and the urban community or region. Instead of utilizing the transport system and the rate structure to influence the flow of goods and people, and the distribution of economic activity and urbanization according to some previously conceived national plan of development, we have permitted our transport facilities and rate structure to accentuate existing advantages and disadvantages. A new policy must be adopted, designed to make our transport system and rate structure a flexible tool instead of a rigid cast for future urban development."

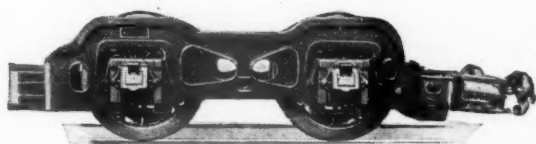
The section on terminals cites competition as the reason for the present multiplicity of stations in urban communities. The committee thinks, however, that possibilities for economy will bring about

Continued on next left-hand page

You wouldn't  
**INTENTIONALLY**  
court failure



You don't take any chances in your automobile repair work—unless you have to. » » » When things wear, as they must in time, back to the seller you go for repairs. » » » In your locomotive replacement work, it is even more important that you use genuine replacement parts—in case of failure you can't just pull to the side of the road and get towed home—you hold up the railroad. » » » Genuine Franklin Replacement Parts for Franklin devices safeguard against expensive failure—but they also actually cost less per 1,000 engine miles, and save a lot of delay and headaches.



**FRANKLIN RAILWAY SUPPLY CO., INC.**

NEW YORK  
CHICAGO  
MONTREAL

unification, and is thus concerned in the main with the problem of bringing terminal developments into harmony with long-range plans for the community. In this connection it fears that transport agencies and regulatory bodies have shown a lack of appreciation of "the community aspect of the terminal problem," and thus it regards it as "unfortunate" that local planning bodies are without the necessary authority in these matters.

The Urbanism Committee is headed by Clarence Dykstra, president of Wisconsin University and formerly city manager of Cincinnati, and includes Louis Brownlow, of the Public Administration Clearing House, Arthur C. Comey of Harvard University, Charles W. Eliot, 2nd, executive officer, National Resources Committee, Harold D. Smith, of the Michigan Municipal League, Dr. M. L. Wilson, undersecretary of agriculture, and Louis Wirth of the University of Chicago. L. Segoe, city planning consultant, was director of the study.

## Equipment and Supplies

### LOCOMOTIVES

THE BALTIMORE & OHIO has completed plans for building a 16-cylinder steam locomotive, a description of which appears elsewhere in the news columns of this issue.

THE LEHIGH VALLEY has ordered six Diesel-electric switching locomotives, for service at its Buffalo, N. Y., terminal, from the Electro-Motive Corporation; two 600-hp. locomotives have been received and are now in service, two 900-hp. locomotives will be placed in service about January 1, 1938, and two other 900-hp. locomotives about May 1.

### FREIGHT CARS

THE GENERAL CHEMICAL COMPANY has ordered 90 tank cars from the General American Transportation Corporation.

THE BARRETT COMPANY will receive bids on September 28 for 15 tank cars of 6,000 gal. capacity and 25 of 8,000 gal. capacity. Some of these are to be insulated and others are to contain compartments.

## Supply Trade

The Youngstown Steel Car Corporation, Niles, Ohio, has opened an eastern district office at 110 East 42nd street, New York City, under the direction of W. E. Bugbee, district sales manager.

John McC. Latimer has been appointed exclusive representative in the Western Pennsylvania territory by Luken-

weld, Inc., Coatesville, Pa. Mr. Latimer's headquarters are in the Koppers building, Pittsburgh. He previously served with the Eastern Car & Construction Co., and since 1925, when he established his own business, has acted as representative for manufacturers handling such accounts as the Eastern Car & Construction Co., the Worthington Pump & Machinery Corp., and De Walt Products Corp.

R. D. McManigal, assistant to the manager of the Central Station and Transportation Division of the Westinghouse Electric International Company, has been appointed manager of that division, with headquarters at New York.

R. R. Davis, apparatus advertising manager of the Westinghouse Electric & Manufacturing Company, has been appointed assistant to the general advertising manager. For the present, Mr. Davis will have his office in the East Pittsburgh, Pa., works, and later will be located in the new Pittsburgh headquarters.

John I. Vaughn, circuit engineer of the General Railway Signal Company, with headquarters at Rochester, N. Y., has been appointed sales engineer, with headquarters at St. Louis, Mo. George J. Johaneck, engineer in the commercial department of the General Railway Signal Company, with headquarters at Rochester, N. Y., has been appointed sales engineer, with headquarters in Chicago.

### OBITUARY

Max A. Berg, vice-president and secretary of the Electric Service Supplies Company, Philadelphia, Pa., died at his home in Chicago on July 16. Mr. Berg had for a long time been connected with the electric railway and power fields. He had served as vice-president and secretary since the Electric Service Supplies Company was founded in 1906. Mr. Berg started his electrical career in 1886 with the Electric Supply Company, Chicago, and later, in 1892, served as manager of the electric railway department of the Ansonia Electric Company, Chicago, after which he became connected with the Ohio Brass Company, Mansfield, Ohio. In 1902 he became a member of the firm of McGill-Porter & Berg, which partnership later became Porter & Berg Co., and in 1906, this company merged with others to form the Electric Service Supplies Company, with which Mr. Berg acted as vice-president and secretary for the past 31 years.

### TRADE PUBLICATION

WROUGHT IRON TANKS.—In a 32-page, 8½-in. by 11-in. pamphlet, the A. M. Byers Company, Pittsburgh, Pa., presents examples of a large number of tanks built of genuine wrought iron that have been in service for many years, the oldest being a railroad roadside tank built in 1881. Pages devoted to descriptions and illustrations of these tanks are followed by others in which recent installations of wrought iron tanks (including one of railroad track pans) are illustrated and described.

## Construction

ATCHISON, TOPEKA & SANTA FE.—This company has under construction at Topeka, Kan., a one-story brick and steel building, 70 ft. by 112 ft., which is to be used as a shop for making repairs to electrical equipment. The structure will cost about \$40,000 and is being built under contract by F. M. Spencer & Son, Topeka.

ATCHISON, TOPEKA & SANTA FE.—A contract has been awarded to the Ellington-Miller Company, Chicago, for the construction of a power house at Eighteenth Street, Chicago, to serve this company's coach yard facilities and enginehouse at that point. A contract has also been awarded to the W. J. Newman Wrecking Company, Chicago, for grading for track changes in the vicinity of Eighteenth and Twentieth streets, Chicago. This company has recently acquired additional property in this vicinity and the present work is being carried out to prepare the site to receive additional tracks.

ERIE.—Revised plans for the elimination of the Howells, Howells Center and Howells Lower crossings of this road in Wallkill, N. Y., have been approved by the New York Public Service Commission.

MISSOURI PACIFIC.—The Interstate Commerce Commission, Division 4, has authorized the trustee of the St. Louis, Brownsville & Mexico to construct an extension from a connection with the main line at Brazoria, Tex., to Clemens Dome, 4.28 miles.

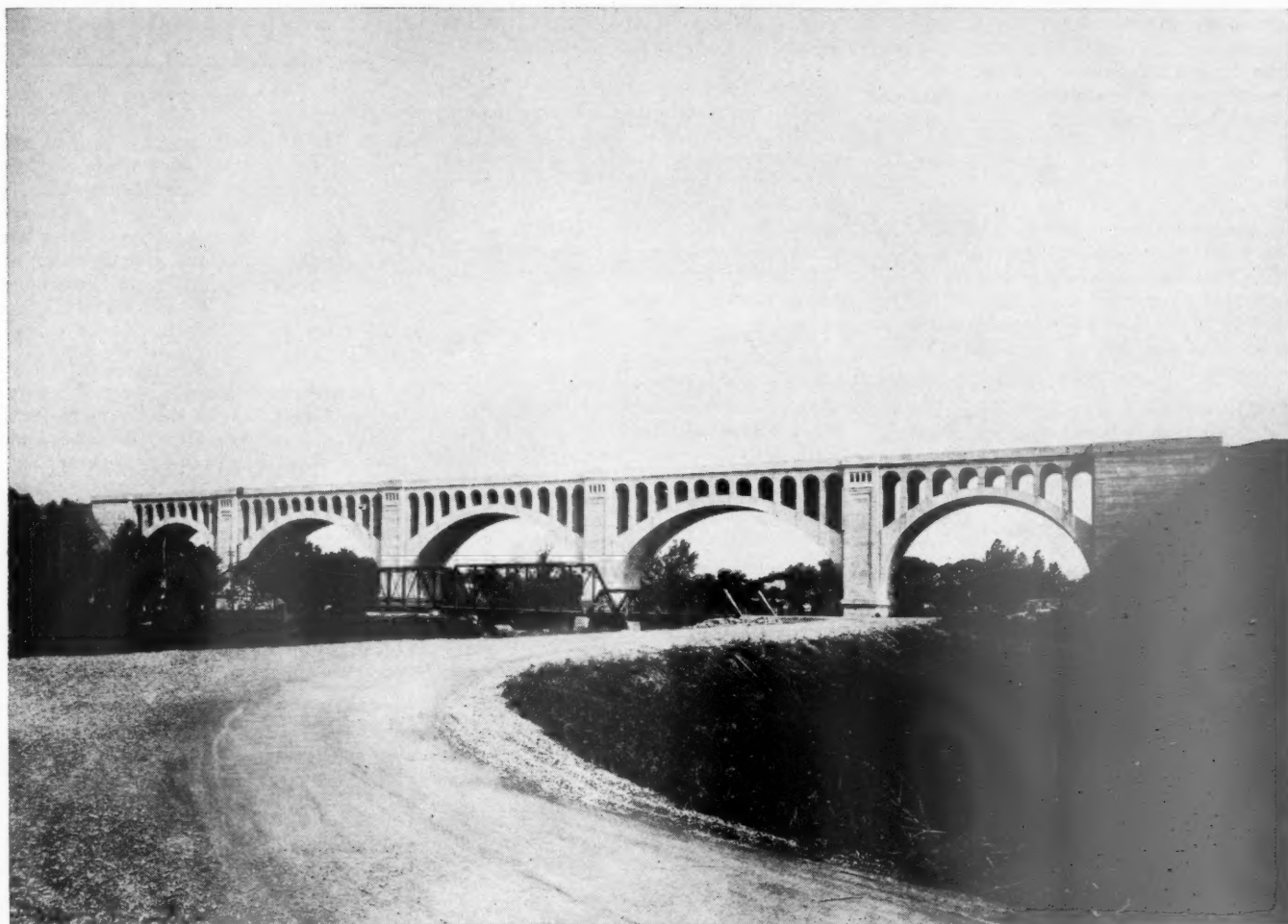
MISSOURI PACIFIC.—Formal application for permission to construct an underpass to carry Highway 50 under the tracks of this company just east of Sedalia, Mo., has been filed with the Missouri State Public Service Commission by the State Highway Commission and the railroad company.

NORTHERN PACIFIC-UNION PACIFIC.—A contract has been awarded to Alloway & George, Spokane, Wash., for the construction of a union station for these companies at Moscow, Ida. It is estimated that the new structure will cost about \$40,000.

OHIO DEPARTMENT OF HIGHWAYS.—The grade crossing elimination program for 1938, as approved by the Bureau of Public Roads, includes the following projects: A subway to carry state Route 183 under the tracks of the New York Central and the Toledo, Angola & Western at Toledo, \$200,000; the reconstruction of a subway carrying U. S. Highway 50 under the tracks of the Pennsylvania in Milford and Terrace Park, \$185,000; a subway carrying Goodale street, which joins Columbus and Grandview, under the tracks of the Chesapeake & Ohio, \$145,000; the reconstruction of a subway carrying State Route 793 under the Pennsylvania, at a point west of Columbus, \$100,000; the construction of a subway carrying State Route 34 under the Wabash at Blakeslee, \$75,000; and the reconstruction of a subway carrying State Route 112 under the Detroit,



## NO. 33 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



## BIG FOUR VIADUCT

SIDNEY, OHIO

Among the recent re-inforced concrete arch viaducts is that of the Cleveland, Cincinnati, Chicago and St. Louis Railway at Sidney, Ohio (New York Central). This viaduct, which is a part of a seven-mile re-location grade revision and double track, is 784 feet long; 105½ feet high and embraces three main arch spans of 140 feet flanked at either end by a span of 100 feet. It contains 27,900 cubic yards of concrete and 900,000 pounds of re-inforcing bars. Selection of the monumental type of bridge was influenced in part by the

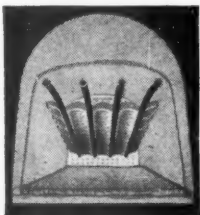
fact that the bridge lies within the city limits of Sidney and crosses an important highway and park so that its location is unusually conspicuous.

\* \* \*

*The Security Sectional Arch for the locomotive firebox is individually designed for every class of power. Be sure a correct Security Arch is applied and be sure it is properly maintained.*

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER  
REFRACTORIES CO.**  
*Refractory Specialists*



**AMERICAN ARCH CO.  
INCORPORATED**  
*Locomotive Combustion  
Specialists* \* \* \*

Toledo & Ironton, at Waverly, \$70,000. The program also includes seven projects involving the construction of overhead crossings, the largest of which is a proposed viaduct carrying State Route 4 over the New York Central and the Erie, at a point three miles northeast of Fairfield, which will cost \$300,000.

**PENNSYLVANIA.**—A contract has been let for building a two-story, 60-ft. extension to the eastern end of the Harrisburg, Pa., passenger station to provide suitable quarters for the power director for the new electrification; construction will be carried out also on a new signal and interlocking tower from which all train movements to and from the station from the east will be controlled.

**SOUTHERN.**—A contract has been awarded to the Ross & White Company, Chicago, for the design and construction of a 100-ton capacity structural steel automatic electric locomotive coaling and sanding plant for installation at Birmingham, Ala.

**UNION.**—Application of this road to construct a new bridge to carry its two main and two siding tracks over Camden road in Mifflin Township, Allegheny county, Pa., and construct a temporary crossing at grade, has been approved by the Pennsylvania Public Utility Commission, and the company has been ordered to submit plans and proceed with the work.

## Financial

**ASHLEY, DREW & NORTHERN.**—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$400,000 of first mortgage 5 per cent bonds, maturing July 1, 1962. The company has sold, subject to commission approval, \$225,000 of the bonds to the Crossett Timber & Development Company and \$175,000 to the Crossett Lumber Company. The proceeds will be used to retire maturing indebtedness.

**CHICAGO GREAT WESTERN.**—*Reorganization.*—The Interstate Commerce Commission, Division 4, has fixed September 30, as the date for the next hearing on the reorganization proceedings of this company.

**CHICAGO, ROCK ISLAND & PACIFIC.**—*Abandonments.*—Trustees of this road have filed with the Interstate Commerce Commission three applications for authority to abandon a total of 83.5 miles of branch lines. The lines involved are: Evans, Iowa, to Knoxville, 20.4 mi.; Muscatine, Iowa, to Iowa Junction, 26 mi.; and Bridgeport, Okla., to Anadarko, 37.49 mi.

**DETROIT, CARO & SANDUSKY.**—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon that part of its line extending from Peck, Mich., to Roseburg, 6.4 miles.

**HOOSAC TUNNEL & WILMINGTON.**—

*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a part of its line extending from Readsboro, Vt., to Wilmington, 13 miles.

**NEW YORK, CHICAGO & ST. LOUIS.**—*Bonds.*—The Interstate Commerce Commission, Division 4, has authorized this company to extend the maturity date from October 1, to October 1, 1947, with the interest rate reduced to 3½ per cent for the extended period, of \$16,381,000 of its first mortgage bonds and to assume obligation and liability as primary obligor in respect of the extended bonds.

**NEW YORK, SUSQUEHANNA & WESTERN.**—*Compensation of Trustees.*—The Interstate Commerce Commission, Division 4, has fixed the salaries of the trustees of this company as follows: Hudson J. Bordwell, \$10,000 a year, and Walter Kidde, \$6,000 a year.

**READING.**—*Bonds of the Perkiomen.*—The Interstate Commerce Commission, Division 4, has authorized the Perkiomen to extend from January 1, 1938, to January 1, 1951, the maturity of \$799,500 of first series mortgage bonds and of \$1,125,000 of second series mortgage bonds, to bear interest, during the extended period, at the rate of 3½ per cent. The commission has also authorized the Reading to assume liability for the payment of the principal and interest on these bonds.

**SANTA FE NORTHWESTERN.**—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon that part of its line extending from milepost 37 (Gilman), N. Mex., to Deer Creek, 4 miles, and to abandon operation of a line of the New Mexico Lumber & Timber Company, extending from Deer Creek, N. Mex., to Porter, 6.3 miles.

**SEABOARD AIR LINE.**—*Receivers' Assumption of Obligation and Liability.*—The Interstate Commerce Commission, Division 4, has dismissed for want of jurisdiction the application of the receivers for authority to assume liability to loan and advance to the Tampa Northern sufficient funds to permit that company to make interest payments at the rate of three per cent on account of interest on \$1,258,000 of outstanding first mortgage 5 per cent bonds pursuant to the provisions of a proposed agreement.

**WABASH.**—*Pays Interest.*—Pursuant to authority granted by the federal court at St. Louis the receivers will pay on October 1, 80 per cent of the face amount of interest due on the road's Omaha division first mortgage 3½ per cent bonds.

### Average Prices of Stocks and Bonds

	Sept. 21	Last week	Last year
Average price of 20 representative railway stocks..	41.61	41.70	56.25
Average price of 20 representative railway bonds..	75.86	76.08	83.88

### Dividends Declared

Mahoning Coal R. R.—\$7.60, payable October 1 to holders of record September 24.  
Virginian.—Preferred, \$1.50, quarterly, payable November 1 to holders of record October 16.

## Railway Officers

### EXECUTIVE

**L. H. Woodall**, assistant general manager of the Western lines of the Southern, with headquarters at St. Louis, Mo., has been appointed assistant to the vice-president, with jurisdiction over loss and damage freight claims and freight claim prevention, with headquarters at Chattanooga, Tenn., succeeding **W. H. Gatchell**, who will retire on October 1, after 64 years of service with this company.

**Leslie B. McDonald**, general manager of the Texas lines of the Southern Pacific (in Texas and Louisiana), with headquarters at Houston, Tex., has been appointed vice-president and general manager, with jurisdiction over the Texas lines and the Louisiana lines. On the latter lines Mr. McDonald succeeds the late **Russell C.**



Leslie B. McDonald

**Watkins**, vice-president and general manager, whose death on July 28 at New Orleans, La., was noted in the *Railway Age* of August 7. Mr. McDonald has been connected with the Southern Pacific for more than 35 years. He was born on August 26, 1883, at Wylie, Tex., and after a college education he entered the service of the Texas lines of the Southern Pacific on May 5, 1902, in the accounting department at Victoria, Tex. Subsequently he served in the accounting department at Houston, then becoming chief clerk to the division engineer and later to the division superintendent. In 1909 Mr. McDonald was advanced to assistant superintendent at Victoria, where he remained until 1912, when he was promoted to superintendent of terminals at Houston. In 1917 he was transferred to the El Paso division, with headquarters at El Paso, Tex., and thence, in 1918, to the Houston division of the Galveston, Harrisburg & San Antonio (now part of the Southern Pacific), with headquarters at San Antonio, Tex. In 1925, he was promoted to assistant general manager of the Texas lines and on March 1, 1930, he was further promoted to general manager, the position he was holding

Continued on next left-hand page

# IMPORTANT *to know!*

## ...the Temperature of Superheated Steam at the Cylinders

Locomotives are designed to deliver to the cylinders steam superheated to a certain temperature. The tabulation shows the effect on the cylinder efficiency of steam superheated to varying degrees. Note the rapid increase in efficiency as the temperature rises.



<u>STEAM TEMPERATURE</u>	<u>STEAM PER I.H.P.-HR.</u>	<u>SAVING IN STEAM From the Use of Superheat</u>
Saturated Steam	28 lb.	—
150° Superheat	21 lb.	25.0%
200° Superheat	18 lb.	35.6%
250° Superheat	16 lb.	43.0%
350° Superheat	14 lb.	50.0%

The only possible way to know the temperature of the steam at the cylinders is by an Elesco pyrometer. It should be in the cab of every superheated locomotive. Periodic readings should be kept and any drop in superheat investigated and corrected.



## THE SUPERHEATER COMPANY

Representative of  
AMERICAN THROTTLE COMPANY INC.  
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at the time of his recent appointment as vice-president and general manager.

### OPERATING

**L. H. Meredith** has been appointed superintendent car service of the Western Maryland, with headquarters at Hagerstown, Md. The position of terminal car accountant has been abolished.

**S. McElroy** has been appointed assistant superintendent of the Kamloops division of the Canadian National, with headquarters at Kamloops, B. C., to succeed **D. C. Gough**, who has been appointed acting assistant superintendent, with headquarters at Kelowna, B. C.

**H. R. Hughes**, assistant superintendent on the Southern Pacific at San Francisco, Cal., and **D. J. Russell**, assistant superintendent on the Portland division, Portland, Ore., have been appointed to the newly-created positions of assistant to the general manager, both with headquarters at San Francisco. **B. W. Mitchell** has been appointed assistant superintendent of the San Joaquin division, with headquarters at Bakersfield, Cal., to succeed **L. P. Hopkins**, who has been transferred to the Coast division, with headquarters at San Francisco, to replace Mr. Hughes. **J. W. Corbett** has been appointed assistant superintendent of the Portland division, to replace Mr. Russell.

### TRAFFIC

**John F. Sweeting**, industrial commissioner, western lines, Canadian Pacific, with headquarters at Winnipeg, Man., has retired on pension.

**L. A. Thomas**, assistant superintendent of police of the Southern, with headquarters at Washington, D. C., has been appointed superintendent of police, with the same headquarters, succeeding **J. W. Connelly**, who will retire on October 1, after 45 years of service. The position of assistant superintendent of police has been abolished.

**George Zabriskie**, general eastern agent for the Pittsburgh & West Virginia, has been appointed freight traffic manager of the New York, Ontario & Western, with headquarters in New York, effective October 1. Mr. Zabriskie was born on August 28, 1890, at Tacoma, Wash. He attended the grammar schools at Tacoma and Bellingham, Wash.; Trinity School, New York; and Massachusetts State College, Amherst, Mass., from which latter institution he was graduated in 1913 with a B.Sc. degree. He entered railway service in February, 1914, as yard clerk for the New York, New Haven & Hartford at Harlem River, N. Y., in which position he served until 1915. After spending two years in other business, Mr. Zabriskie re-entered railway service with the Grand Trunk Pacific in the local freight office at Winnipeg as clerk, and subsequently served as train agent for the same road. Leaving the latter position to serve in the U. S. Army, Mr. Zabriskie in January, 1919, returned again to the Grand Trunk Pacific

as train agent. From May, 1919, until November, 1919, he was traffic manager for the Prince Rupert Dry Dock & Engineering Co., Prince Rupert, B. C. In 1920, he became traffic agent for the Chicago



George Zabriskie

Great Western at New York and in 1924 he became associated with the Wabash as representative in the freight department in New York. Mr. Zabriskie was appointed general eastern agent of the Pittsburgh & West Virginia at New York in January, 1934, the position he held until his recent appointment.

### MECHANICAL

**James H. Wilson**, who has been appointed assistant chief mechanical officer of the Norfolk Southern at Norfolk, Va., as noted in the *Railway Age* of September 11, was born in Valdosta, Ga. He entered the service of the Seaboard Air Line in 1902 as a machinist apprentice, subsequently serving in the mechanical and electrical departments of the Atlantic Coast



James H. Wilson

Line from 1909 until October, 1917. On the latter date Mr. Wilson entered the service of the Norfolk Southern as chief electrician, which position he held until March, 1934, when he was promoted to chief mechanical inspector and assistant superintendent of motive power, in which capacity he served until his recent appointment as assistant chief mechanical officer.

**F. S. Robbins** has been appointed superintendent motive power of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

**M. H. Westbrook**, superintendent of shops of the Grand Trunk Western at Battle Creek, Mich., retired on September 1 after 46 years of service on that road.

**L. H. Kueck**, assistant chief mechanical engineer of the Missouri Pacific, has been promoted to chief mechanical engineer with headquarters as before at St. Louis, Mo., to succeed **Charles Harter**, who has retired.

### OBITUARY

**Fred Jackson**, master mechanic of the Lehigh & Hudson River, died on September 16, at his home in Warwick, N. Y., after a short illness.

**Frank Wenter, Jr.**, general claim agent of the Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Chicago, died at his home at Wilmette, Ill. (a suburb of Chicago), on September 5. A native of Chicago, Mr. Wenter was born on April 6, 1878, and was educated at the University of Michigan, graduating with an LL.B. degree in 1895. He entered railway service in 1907 as claim agent for the North Western at Chicago, serving in this capacity until 1912, when he was appointed district claim agent at Huron, S. D. In 1914 Mr. Wenter became claim agent of the Chicago, St. Paul, Minneapolis & Omaha (controlled by the North Western). In 1923, he returned to the parent company as general claim agent, being appointed also to the same position on the C. St. P. M. & O. in the following year. He was holding both positions at the time of his death.

**F. W. Urbahns**, superintendent on the Minneapolis, St. Paul & Sault Ste. Marie (Soo Line), with headquarters at Chicago, died on September 20 in a hospital at Evanston (a suburb of Chicago), following a long illness. Mr. Urbahns was born on August 30, 1868, at Valparaiso, Ind., and entered railway service in March, 1884, as a telegraph operator on the New York, Chicago & St. Louis. In June, 1888, he was promoted to train dispatcher, holding this position until September, 1900, when he left railway service to become secretary of the Water Works commission at Fort Wayne, Ind. In 1904 he re-entered railway service as chief dispatcher of the Wisconsin Central (now part of the Soo Line), being advanced to trainmaster in January, 1905. In June, 1911, Mr. Urbahns was promoted to assistant superintendent of the Southern district, with headquarters at Chicago, and during the war he served as acting division superintendent, with headquarters at Fond du Lac, Wis., returning subsequently to the position of assistant superintendent at Chicago. In June, 1923, he was promoted to division superintendent, with headquarters at Fond du Lac, being transferred to Chicago in 1926, where he remained until his death.

*Your Confidence in*

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IS RIGHTLY BASED

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● First, Inland's control of raw materials, modern mills and rigid inspection gives you an unusual degree of confidence in the facilities by which Inland Rails are produced.

Second, recent rail investigations have proved that Inland's Controlled Cooling Process stands today as the most effective method of preventing shatter cracks which result in transverse fissures.

Third, your experience and that of other railroad officials is convincing. Inland Controlled Cooled Rails have withstood the most severe main-line service.



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# Up-to-the-second



## G-R-S CODED



**GENERAL**

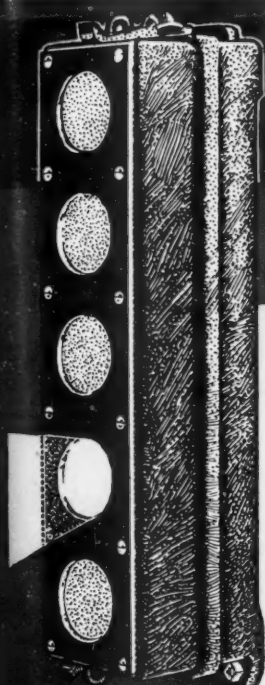
New York

Chicago

**RAILWAY**

ROCHESTER N. Y.





# Information . . .

. . . within the engineman's vision at all times enables him to maintain schedules regardless of fog or thick weather. Regardless of visibility, G-R-S Cab Signals, inform the engineman constantly of his maximum permissible speed. A change to a less restrictive indication permits immediate acceleration at the moment the block is cleared. A more restrictive indication can be immediately acted upon.

Running on up-to-the-second information affords the utmost facility, flexibility and safety of operation. G-R-S Cab Signals can be effectively applied to all kinds of service . . . high-speed passenger trains, rapid transit electric trains, and heavy tonnage trains. The system is ideally adapted to the requirements of modern high speed traffic.

Our nearest district representative is at your service when you are considering cab signals.

## CAB SIGNALS

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**SIGNAL COMPANY**

St. Louis

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# RACOR SPECIALTIES



**T**HE average life of an automatic stand is more than double that of a rigid stand.

The No. 20-B with its newly designed lever provided with an apron to protect its working parts from the entrance of dust and snow is safer and surer in operation. This protection adds still more to the life of the stand.

Automatic stands are replaced only when worn out. They are not broken or damaged by runaway cars.



**T**HESE crossings are economical because they last. The first cost compares favorably with other crossings designed for heavy traffic. The manganese inserts are reversible and interchangeable.

Racor crossings overcome troubles caused by too great rigidity and provide long-wearing manganese surfaces where greatest pounding and wear occur.

Worn castings can be reversed, which utilizes the entire surface of the insert before scrapping. Stock one corner casting for each crossing as a spare to be applied to any corner as needed.

## RAMAPO AJAX CORPORATION

CANADIAN RAMAPO IRON WORKS, LIMITED

General Offices: 230 Park Avenue, N. Y.

RACOR WORKS: Hillburn, New York • Niagara Falls, N. Y. • Chicago, Ill.  
East St. Louis, Ill. • Superior, Wis. • Pueblo, Col. • Los Angeles, Cal. • Seattle, Wash. • Niagara Falls, Ont.



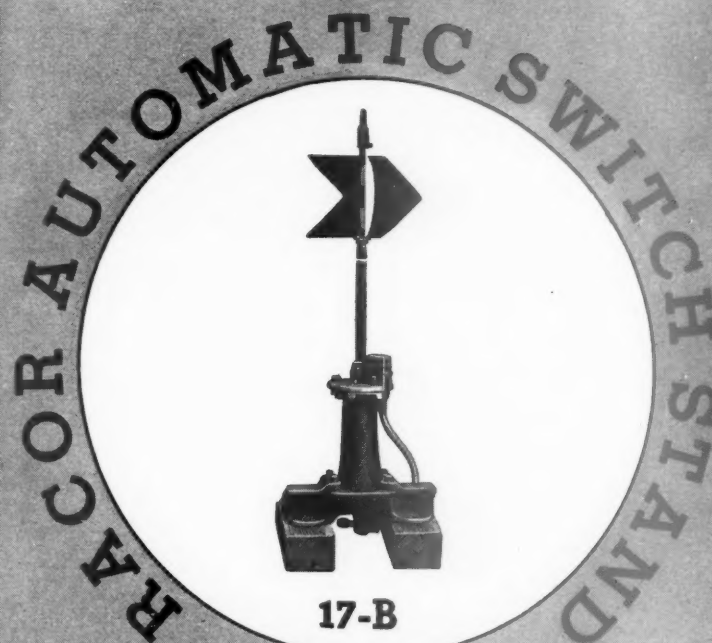
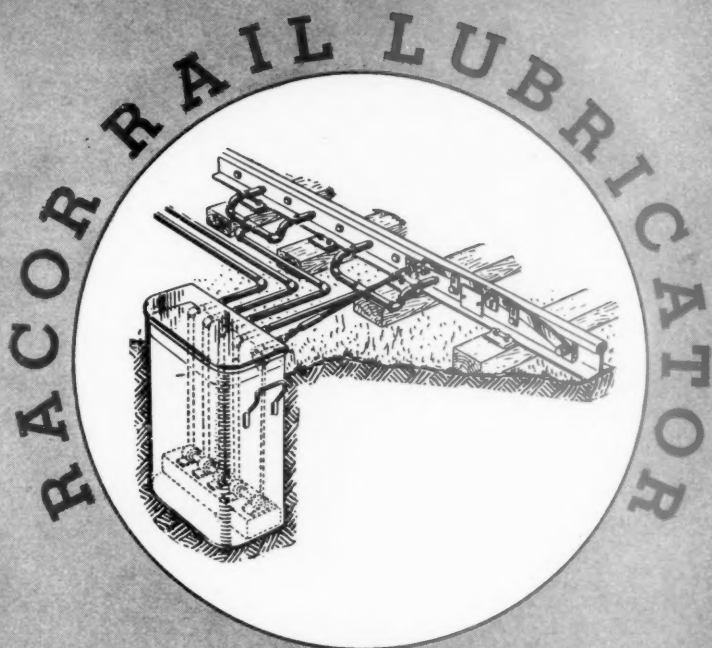
# ARE MONEY SAVERS

**T**HE entire circumference of the flanges of thirty-three inch wheels—are coated with an evenly distributed film of grease sufficient to protect curves for several miles. Substantial operating parts and flexible connections require but periodic inspection. It is only necessary to keep the reservoir filled and the few exposed parts oiled. Extensive tests over a long period prove that the money saved on rail and wheel purchases pays for the lubricator in a comparatively short time. It is a real investment.



**A**S IN other Racor Automatic Safety Switch stands, the 17-B provides positive hand throw, a resilient connection to switch points so that no parts can be overstressed and fail through fatigue, and the well tried automatic mechanism which provides protection against broken switch points, damaged stands and derailed cars.

The improved design with less moving parts prevents accumulation of lost motion and insures proper alignment of target and lamp for years.



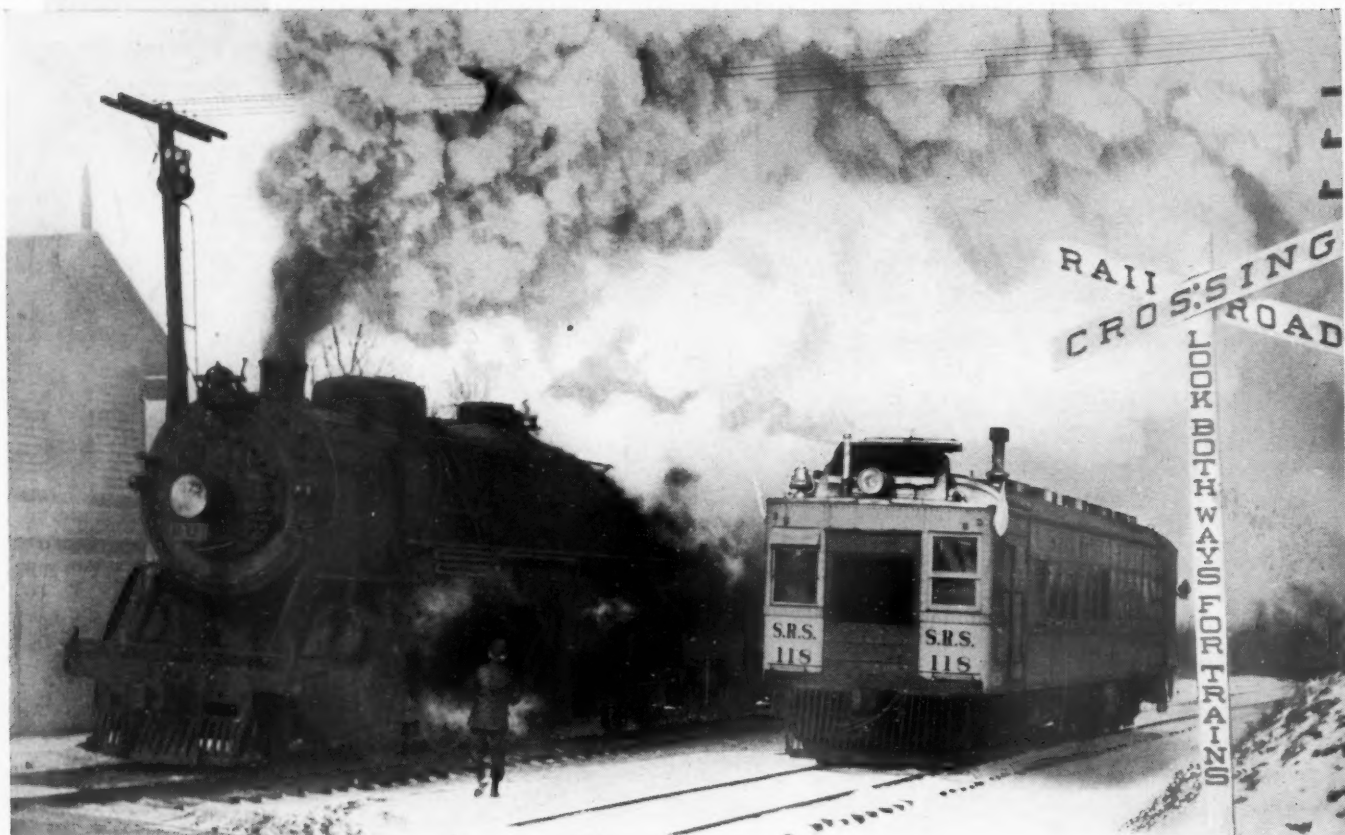
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East St. Louis, Ill. • Superior, Wis. • Pueblo, Col. • Los Angeles, Cal. • Seattle, Wash. • Niagara Falls, Ont.



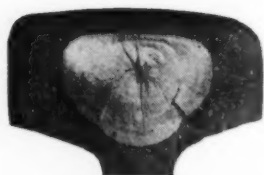


# **PUBLIC FRIEND NUMBER ONE → *Safety***

The telegraph, the signal, the crossing sign, and the Sperry Car all symbolize the comprehensive effort made for Railroad Safety —

## **SPERRY DETECTOR CARS**

- are serving many of the larger railroad systems.
- have tested hundreds of thousands of miles of track since 1928.
- have enabled thousands of defective rails to be removed from track before possible accidents could occur.



Typical Transverse Fissure  
such as causes rail rupture

**MODERN SPERRY DETECTOR CARS  
ASSURE MAXIMUM SAFETY**

**SPERRY RAIL SERVICE**

Brooklyn, New York

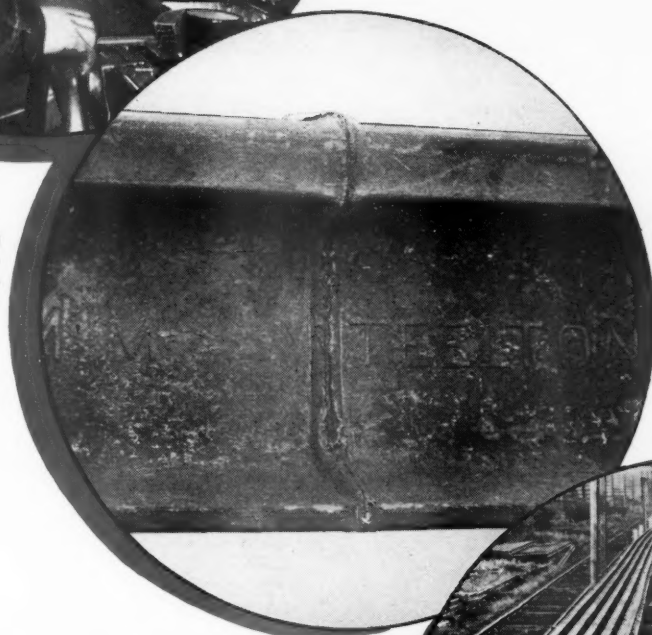
Chicago, Illinois

# FLASH BUTT WELDING OF RAILS

*by Sperry*



**1**  
Rails gripped in welding machine—ends brought together—electric current applied—pre-heated—flashed—pushed up.



**2**  
The Flash Weld—pure original metal of the rail throughout—upset metal is ground off to make a neat sound joint.



## 45 MILES of WELDED RAIL

flash welded by Sperry

is included in the 1937 rail laying program of the Delaware and Hudson Railroad Corporation.

Sperry welded rail, fed onto flat cars, on yard track, is easily transported to points of laying.

**SPERRY RAIL SERVICE**

Brooklyn, N. Y.

Chicago, Ill.

**3**  
Rails welded in any convenient length. 12 strings of 39' rail, welded into 1000' lengths, being transported from yard for distribution along-side track.

# Add up these Exide-Ironclad features and you get . . .

## BALANCED CONSTRUCTION

**I**N the Exide-Ironclad Battery for railway car-lighting and air-conditioning service, no one feature has been over-emphasized at the cost of other desirable points. This is natural, for Exide has been supplying railroads with batteries for so many years that Exide-Ironclads very accurately reflect the current needs of railway service.

The battery you install must be reliable—able to give practically its full rate of capacity under normal operating conditions throughout its life. Its characteristics should be such that it will maintain a good voltage for illumination of uniform light intensity regardless of the severity of the service. It must be capable of utilizing efficiently any and all charging currents supplied to it, from the heaviest current to the merest trickle.

Battery weight must be kept low, and all possible space must be saved. For this reason Exide-Ironclad Batteries are now assembled in new Exide Monobloc containers which provide substantial economies in both weight and space. A well-defined balance should exist between battery life and battery cost. And maintenance should be as nearly negligible as is possible with any equipment.

In all these points, you will find a desirable balance in the Exide-Ironclad design and construction. The experience of many

RELIABILITY  
CHARACTERISTICS  
WEIGHT & SPACE  
EFFICIENCY  
LIFE & COST  
EASE OF MAINTENANCE

---

BALANCED CONSTRUCTION

leading railroads bears that out. But why not check these points yourself? They explain why Exide-Ironclads can improve your car-lighting and air-conditioning service and cut costs.

THE ELECTRIC STORAGE BATTERY CO.  
Philadelphia

*The World's Largest Manufacturers  
of Storage Batteries for Every Purpose*  
Exide Batteries of Canada, Limited, Toronto



# Exide IRONCLAD BATTERIES

With Exide MIPOR Separators

"MIPOR," Reg. U. S. Pat. Off.





*To cut down wear on Ties —*

**BETHLEHEM**  
*Screw Spikes*

**M**OVEMENT between tie plate and wood is a major cause of tie wear. This continual sliding and grinding, as wheel after wheel of heavily loaded trains roll by, cuts away surface fibres, starts destruction.

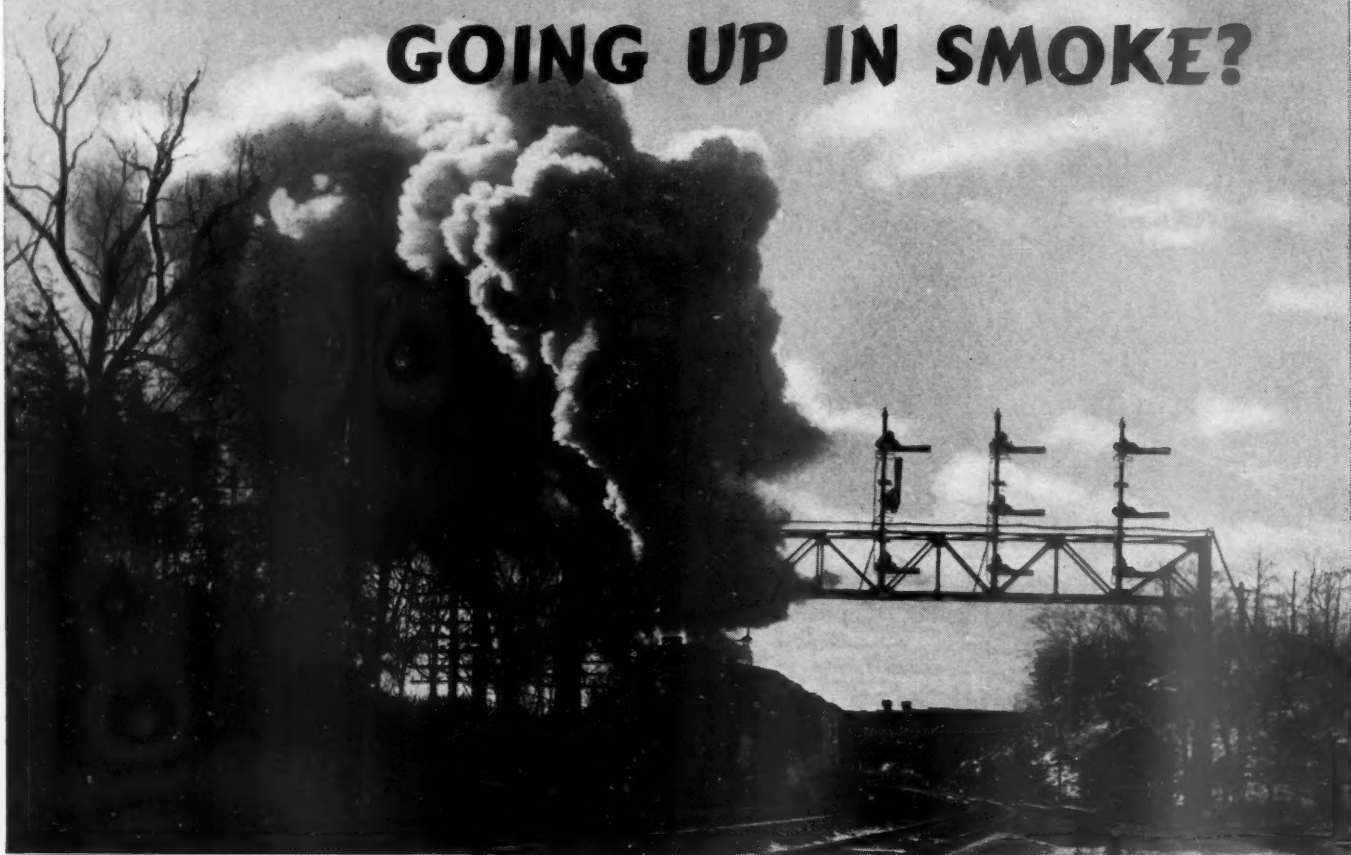
Many railroads feel that the most effective way of preventing this tie-plate movement is the use of screw spikes—spikes which grip the tie positively by threads as well as by friction. A tie plate fastened with these screw spikes is anchored firmly against the wood. Further,

these spikes do not cut fibres of the tie as they are driven. Bethlehem Steel Company's Lebanon, Pa., plant makes all types of screw spikes—to date has made 127 different designs and can make any additional style that can be forged and threaded. These spikes can be supplied in copper-bearing, rust-resisting steel as well as in standard open-hearth steel. Either improves tie life—the copper-bearing steel goes a long way toward preventing corrosion.

**BETHLEHEM STEEL COMPANY**



# ARE YOUR SIGNAL EQUIPMENT MAINTENANCE COSTS GOING UP IN SMOKE?



MEASURE YOUR PAINT COST BY THE *performance yardstick* —

**S**IGNAL EQUIPMENT certainly leads a tough life. Day in, day out, it is attacked by dirty smoke, acid fumes, dust and dirt. In addition, another deadly enemy to paint—the weather—is constantly at work trying to break down protective film. Blazing sun, rain, sleet, snow, salt air—all do their best to chip, crack, and corrode the finish.

Many modern roads are using Du Pont DULUX to keep painting costs down. Its vivid colors are especially suited for signals, switch stands and targets. And DULUX is amazingly *durable*. It keeps its original brilliance a far longer time than orthodox finishes—lengthens the time between repainting—saves money.

DULUX Metal Protective System for

new construction gives the steel structures themselves greater protection for a longer time, just as it is doing on so many bridges, towers, transformer stations as well as all kinds of rolling stock.

Have you investigated the economy

of DULUX? If not, your overhead may be higher than necessary. A Du Pont representative will be glad to call and give you complete information. E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware.

## LONG-LASTING BRILLIANCE WITH DULUX ALUMINUM

Two large railroads, with trackage totaling 14,878 miles, have adopted Du Pont DULUX Aluminum for all signal equipment.

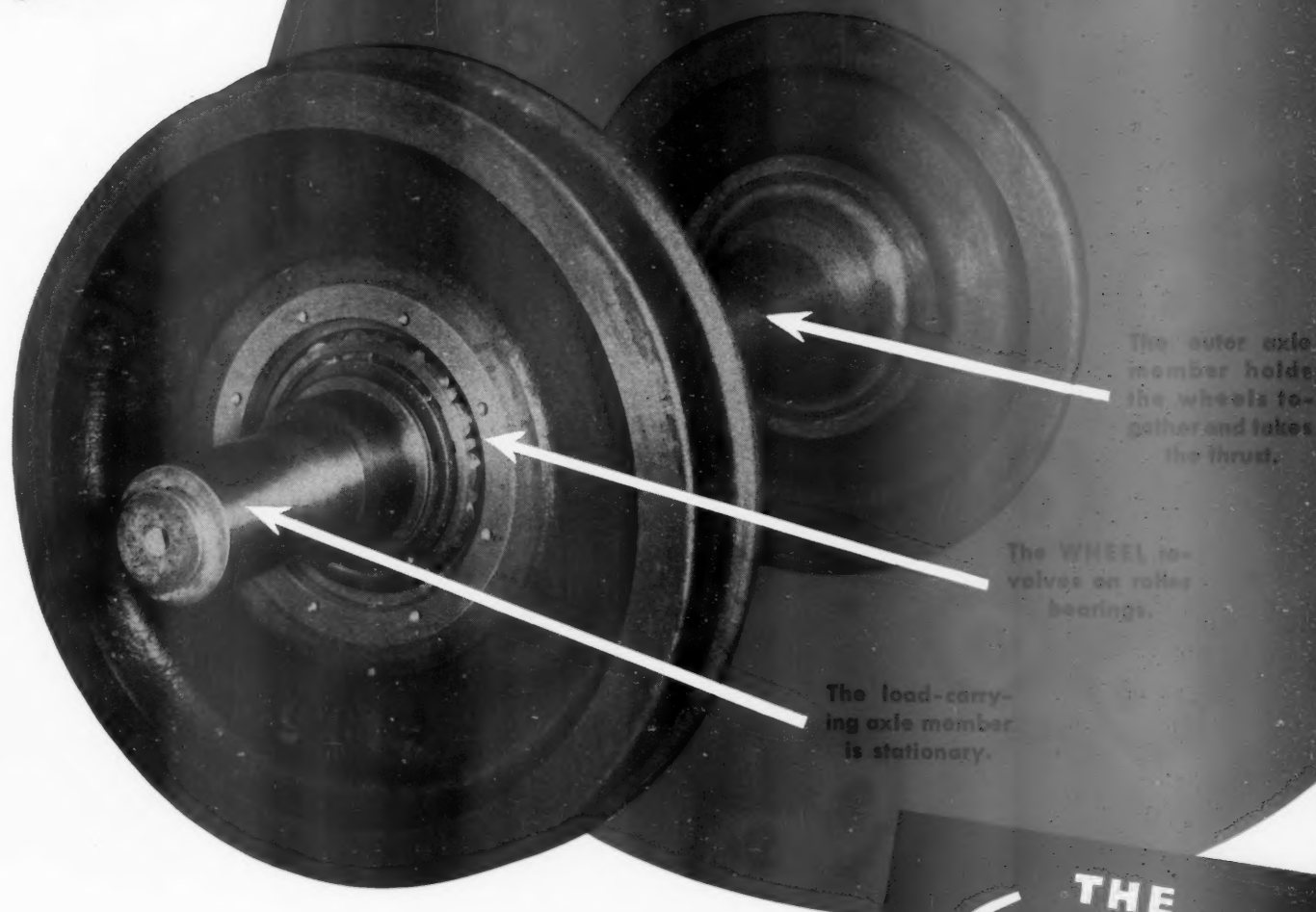
The DULUX vehicles give max-

imum leafing of the aluminum flakes, thereby giving greater brilliance to the finish. This DULUX vehicle also gives continued better appearance as well as the utmost in protection.



# TRANSPORTATION FINISHES

# A•S•F Roller Bearing Units are not subject to axle troubles



The outer axle member holds the wheels together and takes the thrust.

The WHEEL revolves on roller bearings.

The load-carrying axle member is stationary.

**THE  
*Safest*  
AXLE CONSTRUCTION**

The load-carrying axle of the A•S•F Out-board Unit does not revolve . . . the wheels rotate about it on the roller bearings. This stationary load-carrying axle is not subjected to the damaging fatigue produced by stress reversals, which ultimately lead to axle failures.

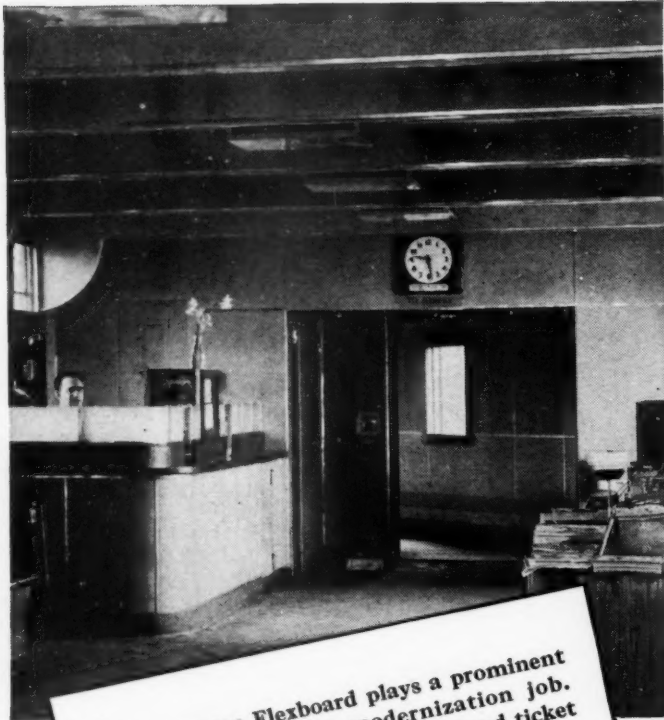
The design of A•S•F Roller Bearing

Units incorporates the safest axle construction that can be used. That is why A•S•F Units have an enviable record of satisfactory performance under the heaviest loads and at the highest speeds.

**AMERICAN STEEL FOUNDRIES**



# Modernizing for Tomorrow...



J-M Asbestos Flexboard plays a prominent part in this station-modernization job. Walls, ceiling beams, passageway and ticket counter are paneled with this fireproof, attractive and durable material.

A number of J-M materials were utilized in the remodeling of this passenger station. J-M Asbestos Flexboard is used on the walls, and J-M Bevel Tile gives an attractive appearance to the ceiling. The floor is colorful, durable J-M Asphalt Tile.



**Dressing up stations? Investigate J-M materials. Their basic permanence and negligible upkeep promise attractive appearance and low maintenance cost for years to come**

**O**BVIOUSLY, modernization is playing a vital part in the railroads' plans for meeting changing conditions in transportation.

And just as obvious are the advantages of modernization that looks past the present into the future. In other words . . . renovation or new construction that employs materials of inherent permanence and negligible upkeep . . . materials that *remain* modern.

Products and services answering that description have earned for

Johns-Manville a record of improved performance and lowered maintenance costs in every branch of transportation.

Consider station modernization, for example. Here, J-M Asbestos Flexboard and Wainscoting and various J-M Insulating Board products offer a wide range of attractive finishes and designs. For floors, there is decorative, durable J-M Asphalt Tile. For ceilings, J-M Acoustical Treatment or J-M Bevel Tile. And for exteriors, fireproof, permanent

J-M Asbestos Roofs and J-M Asbestos Siding Shingles.

. . .

These and many other Johns-Manville materials carry forward a 79-year service record of improved performance and lowered maintenance costs in every branch of railroad operation. For complete information on any Johns-Manville product, write Johns-Manville, New York, Cleveland, Chicago, St. Louis, San Francisco.



## Johns-Manville *Service to Transportation*

**J-M MATERIALS CARRY ON A 79-YEAR SERVICE RECORD**

# NOW IMMEDIATE PAINTING OF GALVANIZED SHEETS

**ORDINARY GALVANIZED SHEET**  
This surface needs etching or  
weathering before painting

**ARMCO  
GALVANIZED PAINTGRIP SHEET**  
Note the paint-gripping qualities  
made evident by the enlargement

Now you can give your sheet metal work the immediate and lasting paint-finish demanded by appearance and utility. By using Armco Galvanized Paintgrip sheets you gain full protection of galvanizing *plus* the immediate beauty of paint. No need to hasten corrosion by chemical etching or prolonged weathering. You can paint Armco Paintgrip sheets *immediately* with every assurance of a tenacious paint-bond. • Use these improved sheets for passenger and freight car roofing; to stay corrosion induced by moisture on air conditioning ducts; to give the lasting protection of paint to locomotive jackets—inside and out. Also use it for roofing, gutters and downspouts on wayside structures and wherever else sheet metal work needs the immediate protection and beauty of paint. • Galvanized Armco Paintgrip sheets are supplied in grades to meet your individual needs. For advice on special problems write to the Armco Railroad Sales Co., Subsidiary of The American Rolling Mill Company, 1051 Curtis Street, Middletown, Ohio. District offices in all Principal cities.



## ARMCO PAINTGRIP SHEETS

# Increase your profits with

# J&L STEEL



## Instant steel service is **YOURS** .... call your **J&L Warehouse**

Railroads find Jones & Laughlin Warehouse Service fast . . . economical . . . complete . . . dependable. You, too, will get steel quickly . . . in ready-for-use form . . . from *your* J&L Warehouse.

J&L Warehouses are conveniently located. They carry high quality steel products to meet your individual requirements for safety . . . appearance . . . economy. Jones & Laughlin Warehouses are

fully equipped for cutting, bending, forming, welding and fabricating steel to meet your *exact needs*.

Your J&L Warehouse saves you money . . . prevents delays . . . helps you keep operations *on schedule*. For high quality steel products that save you time and money, order from your J&L Warehouse. Write today, on your business letterhead, for your J&L Warehouse Stock List.

### JONES & LAUGHLIN STEEL CORPORATION • PITTSBURGH

MAKERS OF HIGH QUALITY IRON AND STEEL PRODUCTS SINCE 1850

## J & L WAREHOUSES

**PITTSBURGH**  
26th and Jane Sts.  
Hemlock 1000

**CINCINNATI**  
5th and Vine Sts.  
Main 2324

**DETROIT**  
3289 Beaufort Ave.  
Plaza 0470

**NEW ORLEANS**  
North Miro and Japonica Sts.  
Franklin 1131

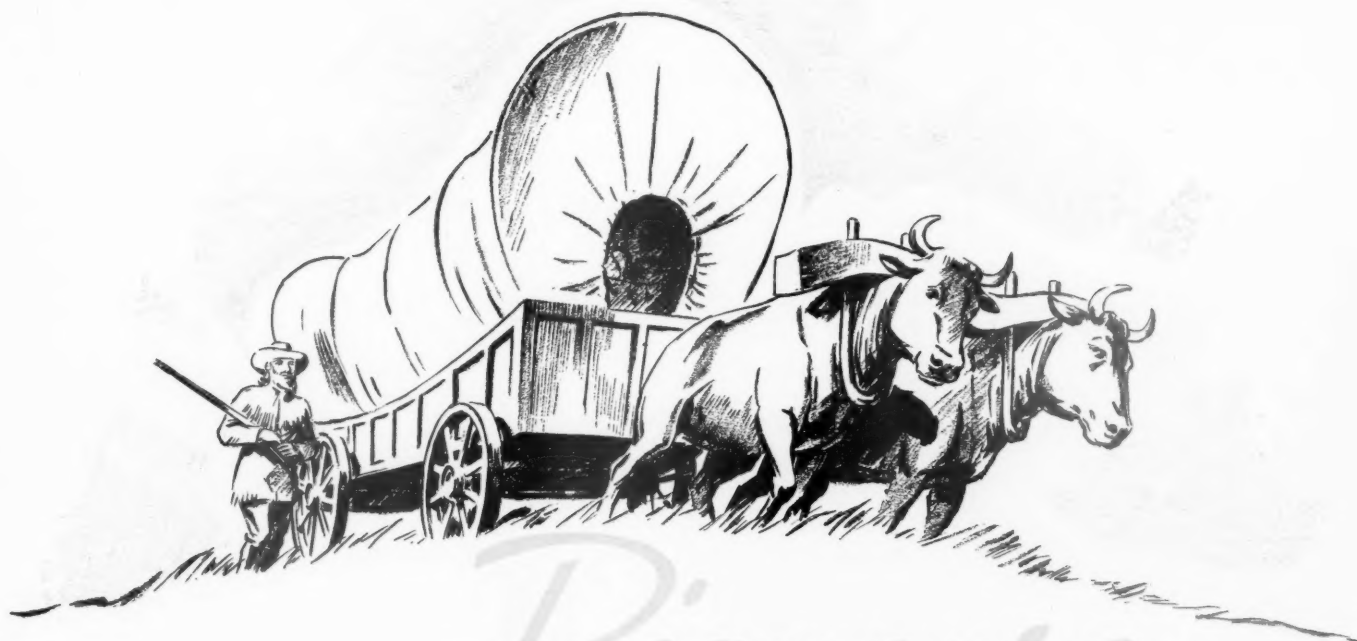
**CHICAGO**  
2250 W. 47th St.  
Virginia 1600

**NEW YORK**, 30-44 Reuel Ave., Long Island City . . . **New York City**, Ironsides 6-8700 . . . **Jersey City**, Bergen 4-2994 . . . **Newark**, Market 3-2994  
Operated by Jones & Laughlin Steel Service, Inc., formerly National Bridge Works

**MEMPHIS**, 1 Auction Ave.—5-1625 . . . Distributing Warehouse for Pipe, Sheets, Spikes and Wire Products. Reinforcing Bar Warehouse and Fabricating Shop

**FOR EVERY NEED . . . THE RIGHT QUALITY OF STEEL IN A FULL RANGE OF SIZES**





*Pioneers*  
in the development of

## THE LIGHT WEIGHT PISTON and *Combination Sectional* BULL RING PACKING!

**B**LAZING their own trail, L.F.M. engineers were first in the development of this light weight piston combination which has practically worked miracles in the reduction of cylinder maintenance costs.

The piston is made from light alloy steel of exceptionally high tensile strength. It is approximately 50% lighter than the conventional designs. *No spider is used.*

The Combination Sectional Bull Ring Packing, furnished in either bronze or cast iron,

or a combination of bronze and iron obviously serves two purposes. It eliminates all of the maintenance costs of the conventional bull ring including machining, riveting, welding, etc.

The superior economical advantages of this L.F.M. combination are evidenced by the fact that today it is standard on practically all large railroads. Performance records show exceptional mileage between renewals and big savings in maintenance costs. Why not arrange for a trial installation?

**THE LOCOMOTIVE FINISHED  
MATERIAL CO.** 74 TRINITY PLACE  
NEW YORK CITY  
ATCHISON, KANS. RY. EXCH. BLDG., CHICAGO

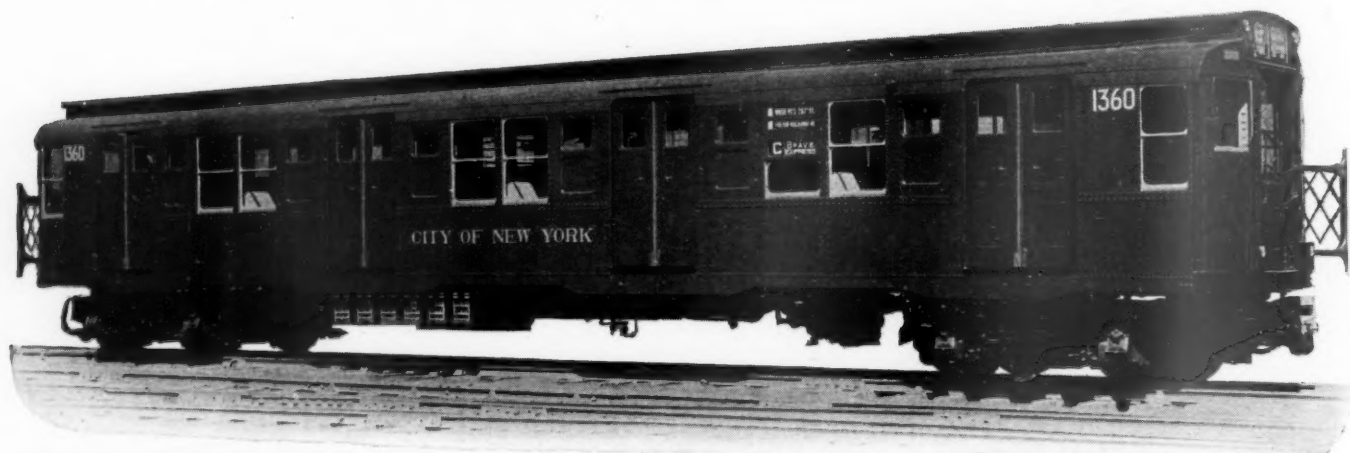
ESTABLISHED 1872



Cross Section of  
UNIVERSAL  
Sectional Packing

*Not one failure in 5 years*

**WITH CHROMIUM-VANADIUM SPRINGS ON  
NEW YORK CITY'S INDEPENDENT SUBWAY SYSTEM**



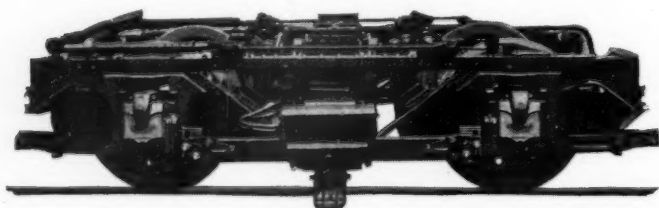
During 1936, New York's city-owned and operated subway established some remarkable records. For example, 262,000,000 passengers were handled with an "on time" record of 99.78% in the 1300 cars which were furnished by American Car & Foundry Company, The Pullman-Standard Manufacturing Company, and Pressed Steel Car Company, Inc.

The Chromium-Vanadium springs produced by Pittsburgh Spring and Steel Co. which are used exclusively on these cars also made a record for themselves, not during 1936 alone, but since 1931 when they were first applied. During this five-year period there has not

been a single failure of Chromium-Vanadium springs.

This record of spring performance points the way for the railroad man who is striving to slash his spring maintenance bill. Chromium-Vanadium Springs... with their higher physical properties... not only insure longer service life but also provide the greater riding comfort which is so essential in today's railroad service.

A Vanadium Metallurgist will be glad to show you other impressive records of reduced spring maintenance and to help you in the solution of your spring problem. His services are at your disposal without obligation, of course.



**VANADIUM CORPORATION OF AMERICA**

420 LEXINGTON AVENUE, NEW YORK, N. Y.

Plants at Bridgeville, Pa., and Niagara Falls, N. Y.  
Research and Development Laboratories, Bridgeville, Pa.

**Vanadium**  
*Steels*

**FOR STRENGTH • TOUGHNESS • DURABILITY**



**FERRO ALLOYS**  
of vanadium, silicon, chromium,  
and titanium, produced by the  
Vanadium Corporation of America,  
are used by steel makers in the  
production of high-quality steels.

# BRAKE\_

## AND SPARE PARTS

## SUPPLIED PROMPTLY

**O**UR PLANT has adequate capacity to produce with speed and efficiency, the largest orders for complete sets and parts of the different types of air brakes for today's trains. A large reserve stock of complete sets, as well as spare parts for all types, insures prompt shipments—time saving service which often saves money for users of our equipment.



**The New York Air Brake Company**

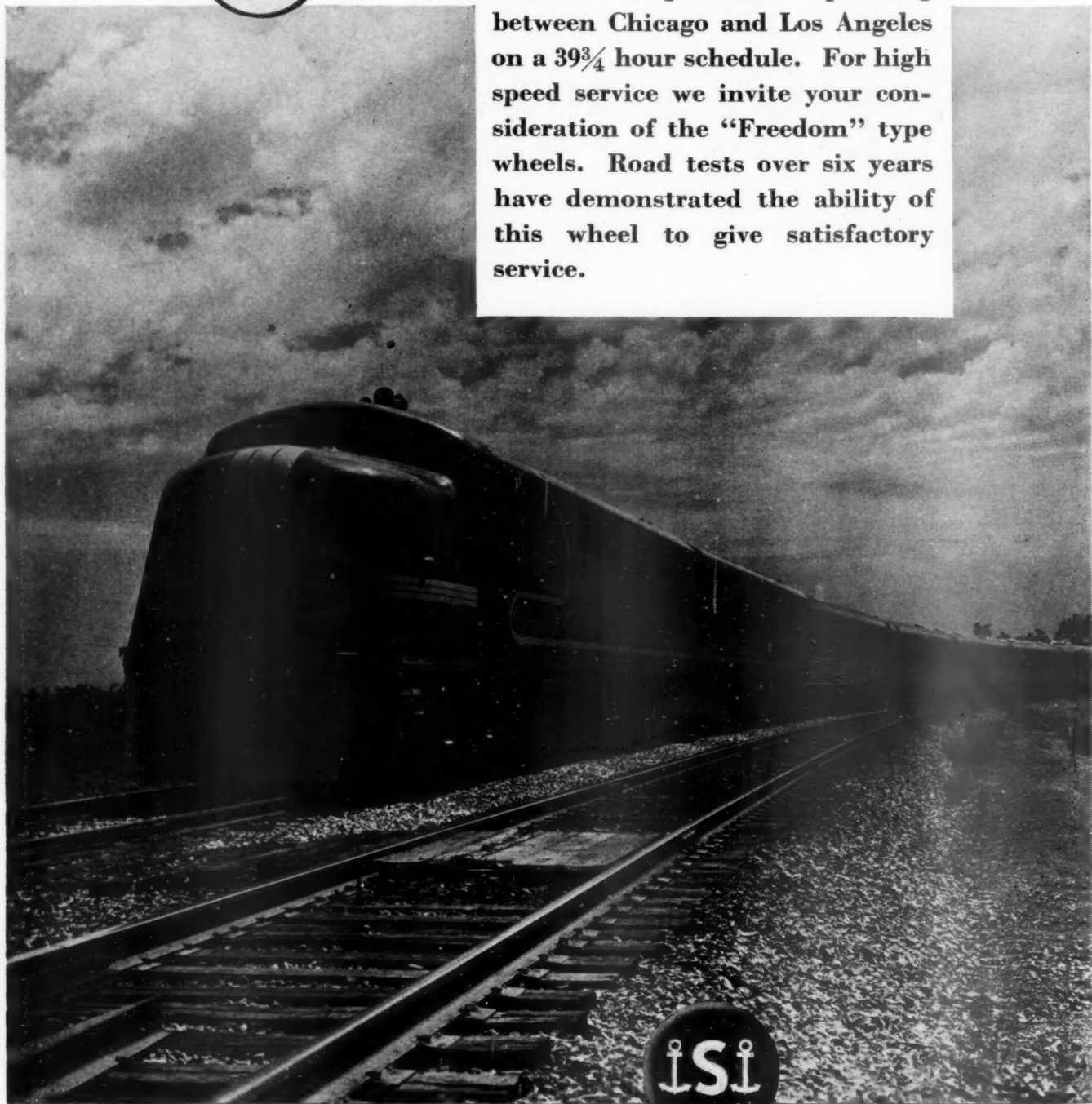
420 Lexington Ave., New York City

Plant: Watertown, New York





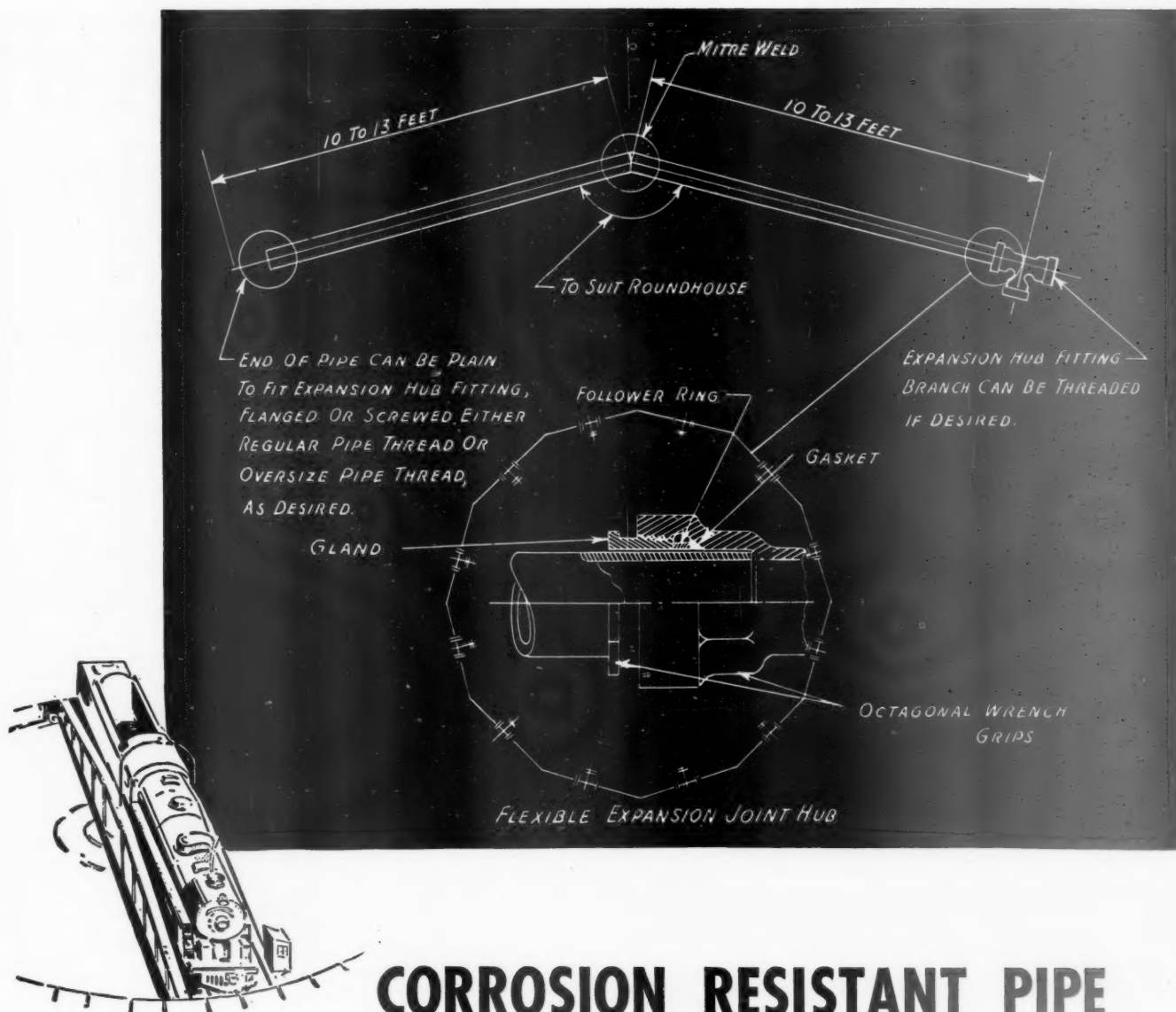
**S**TANDARD Steel Works "Freedom" type rolled steel wheels and Standard carbon steel axles were selected for the cars of the Santa Fe "Super-Chief" operating between Chicago and Los Angeles on a  $39\frac{3}{4}$  hour schedule. For high speed service we invite your consideration of the "Freedom" type wheels. Road tests over six years have demonstrated the ability of this wheel to give satisfactory service.



# STANDARD

SUBSIDIARY OF THE BALDWIN LOCO. WORKS

**STEEL WORKS CO.**  
**BURNHAM, PA.**



## CORROSION RESISTANT PIPE for Roundhouses

The above drawing illustrates the method by which Walworth Hi-Test Cast Iron Pipe is installed in roundhouses. The pipe is made in sizes 1½" to 8" inclusive, has the wall thickness of Extra Heavy Steel Pipe, and can be cut and threaded with standard pipe cutting and threading tools. We will be pleased to supply booklet giving further details on request. Address:

# WALWORTH

WALWORTH COMPANY  
60 EAST 42nd STREET, NEW YORK

VALVES  
FITTINGS  
and TOOLS

Backed by  
95 Years' Service

DISTRIBUTORS IN PRINCIPAL  
CITIES THROUGHOUT THE WORLD



# UNDISPUTED LEADERSHIP

for

*One Hundred Years*

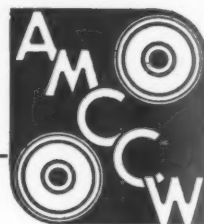
# CHILLED CAR WHEELS

A BASIC fundamental of superior car wheel design appeared with the introduction of chilled tread wheels in 1836.

The soundness of that principle has been unquestionably proven from that day to the present high speed, heavy tonnage era.

More than 25,000,000 chilled car wheels carry 85% of America's freight . . . they meet every modern demand in a superior manner and with unequaled economy.

The wide-spread research facilities of this Association are keeping the CHILLED CAR WHEEL *in advance* of the most rigid of modern requirements.



## MEMBERS

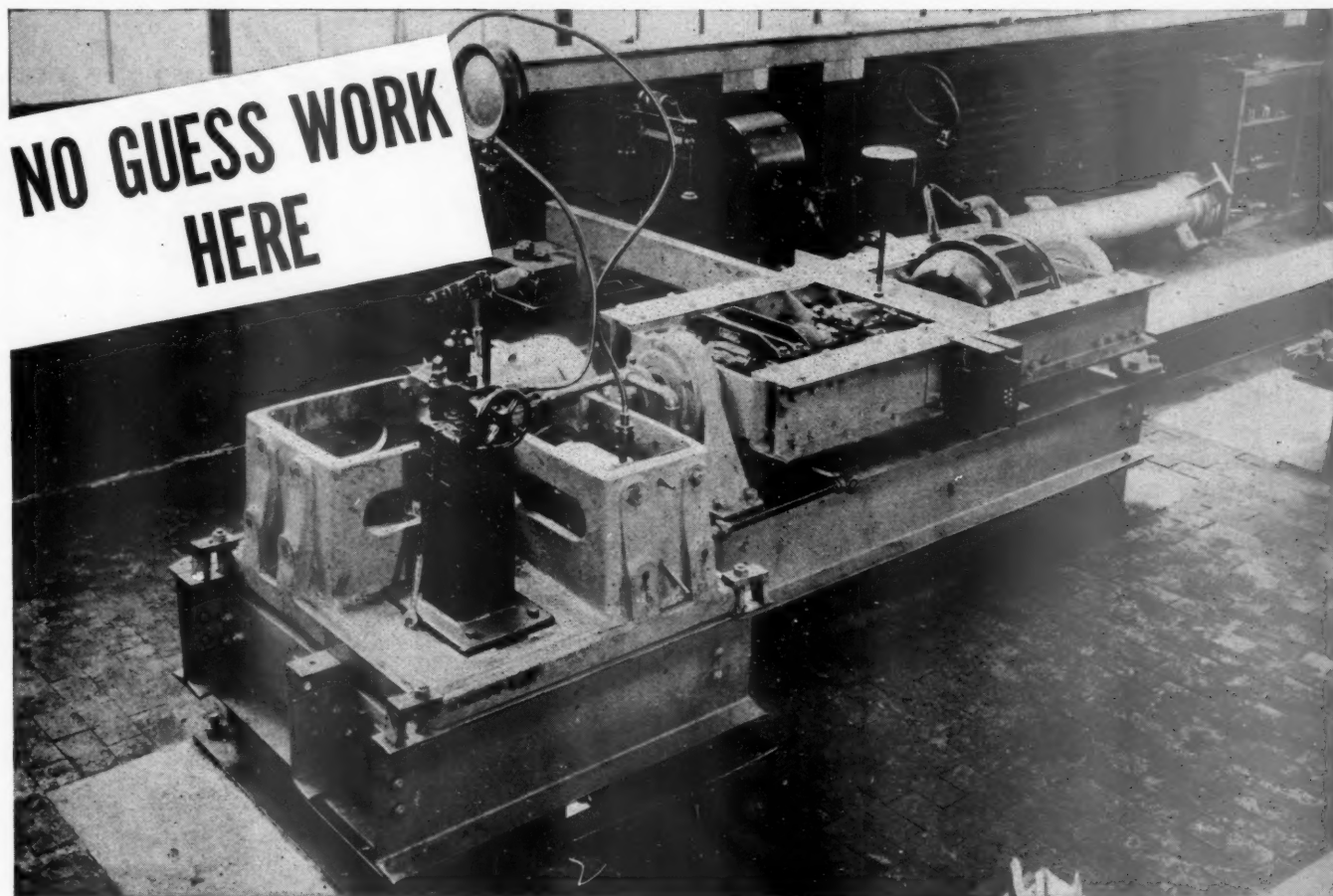
Albany Car Wheel Co.  
American Car & Fdry. Co.  
Bass Fdry. & Machine Co.  
Canada Iron Foundries, Ltd.  
Canadian Car & Fdry. Co.  
Cleveland Production Co.  
Dominion Wheel & Fdries., Ltd.  
Griffin Wheel Co.  
Hannibal Car Wheel & Fdry. Co.  
Lobdell Car Wheel Co.  
Louisville Car Wheel & Ry. Sup. Co.  
Marshall Car Wheel & Fdry. Co.  
Maryland Car Wheel Co.  
Mt. Vernon Car Mfg. Co.  
New York Car Wheel Co.  
Pullman-Standard Car Mfg. Co.  
Ramapo Fdry. & Wheel Works  
Reading Car Wheel Co.  
Southern Wheel Division of  
A. B. S. & F. Co.  
Tredegar Iron Works

**ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS**

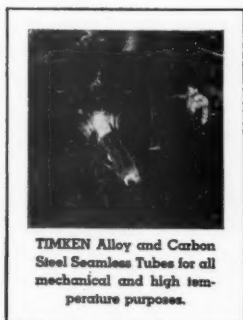
445 N. Sacramento Blvd., Chicago, Illinois

230 Park Avenue, New York, N. Y.





The outstanding success of TIMKEN Roller Bearings on American railroads is largely due to definite and exact knowledge of railroad operating conditions. For example, the machine shown above—one of many unique pieces of equipment in the Timken Testing Laboratories—makes possible accurate comparisons of frictional resistance in TIMKEN Roller Bearings and plain brass bearings in pounds per ton at various speeds and loads.



TIMKEN Alloy and Carbon Steel Seamless Tubes for all mechanical and high temperature purposes.

We have invested hundreds of thousands of dollars in special research, manufacturing and testing equipment to give American railroads the greatest possible benefits of railroad roller bearings and as a

result this All-American railroad bearing made by an All-American manufacturer is used in an overwhelming majority of modern car, locomotive and streamlined train developments in the United States.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

Manufacturers of Timken Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; Timken Alloy Steels and Carbon and Alloy Seamless tubing; Timken Rock Bits; and Timken Fuel Injection Equipment.

# TIMKEN

## TAPERED ROLLER BEARINGS



# Follow the Fleets



## **L**APEER Railway Express



## Two Big Names for Dependable Service

From coast to coast, border to border, nation-wide Railway Express ships and delivers America's goods. Whether it is a shipment of precious trinkets or life-saving serums, a mink coat sent with inspection privilege to the customer, or the thousand-and-one items that form an integral part in the nation's daily life, Railway Express can be depended upon to handle them all safely, intelligently and swiftly.

As reliable as this service is the dependable Lapeer Trailer. In every large city of the nation great fleets of Lapeer Trailers aid to sustain this jealously guarded reputation for fine service, where they have been depended upon as a reliable means of extending this service since the earliest development of the automatic semi-trailer.

Fully automatic—*completely* cab controlled—Lapeer serves the needs of industrial and commercial haulers with the world's best in sturdy, dependable trailers.

**TRAILMOBILE** — Interchangeable  
**LAPEER** — fully cab controlled

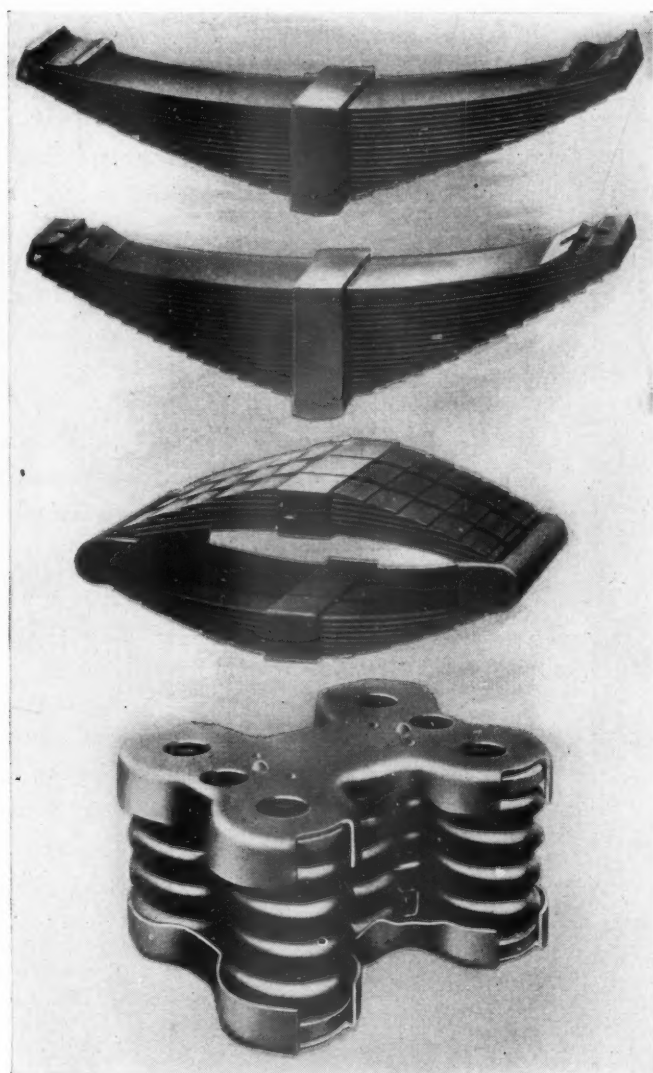
*The Trailer Company of America*  
Cincinnati, Ohio

*The Easiest  
Pulling Trailer  
on the Road*

QUALITY



SPRINGS



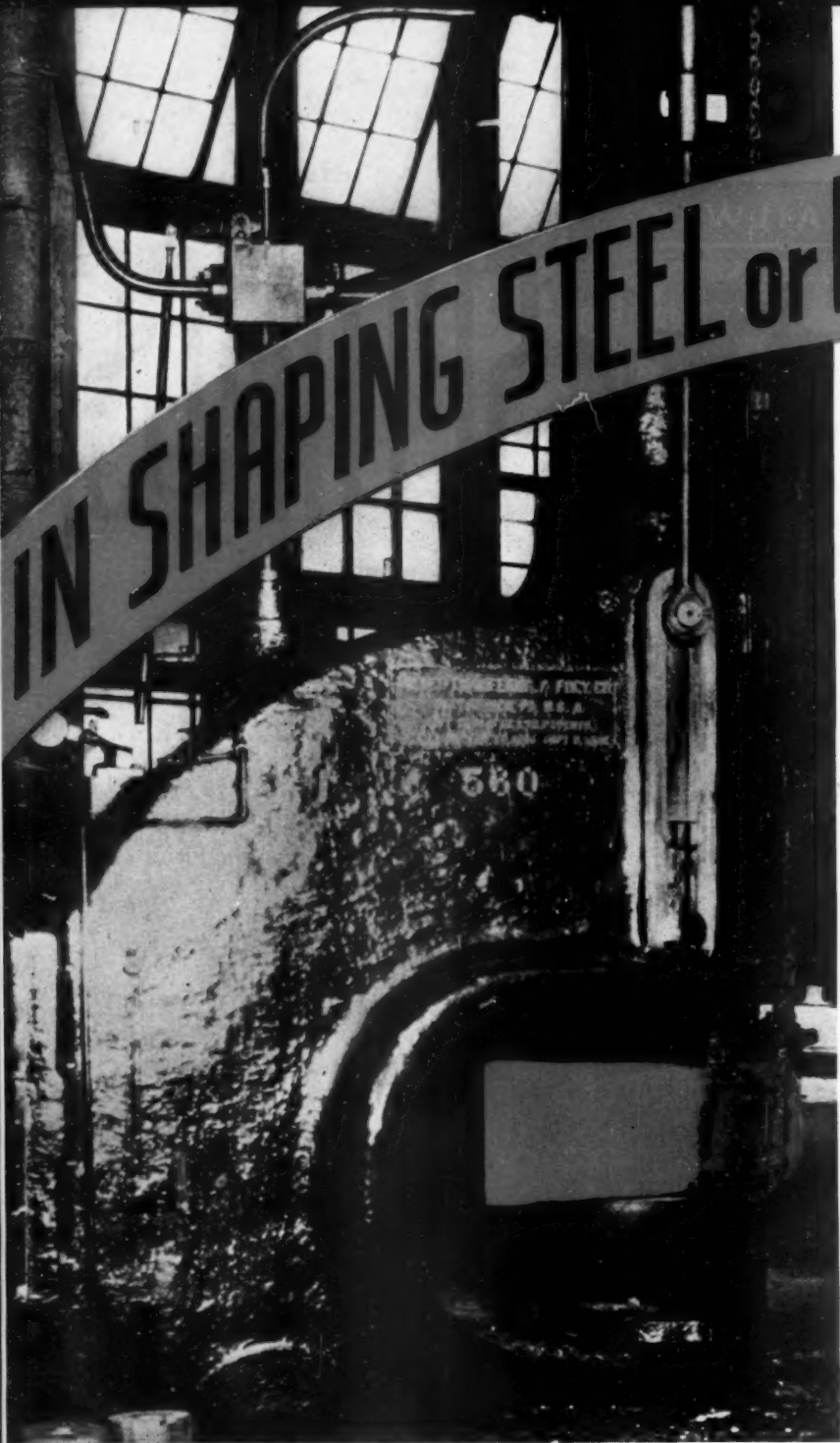
"RAILWAY" SPRINGS are manufactured to give the economy and continuity of service that is always the keynote of "Railway" Quality Products. In this day of high operating efficiency you can't help but value the many benefits delivered by the high-mileage per dollar service and the low cost per mile economy of "Railway" Springs.

The high quality of all "Railway" Springs, tires, wheels, steel-tired wheels is safeguarded by long practical experience, untiring research, the best of raw materials, ultra modern testing and manufacturing facilities—and a determination to improve constantly the quality of and the service rendered by "Railway" Products.

Why be satisfied with less than "Railway" Quality when "Railway" Products cost you less in the end.

AMERICAN LOCOMOTIVE COMPANY  
RAILWAY STEEL SPRING DIVISION  
30 CHURCH STREET NEW YORK N.Y.





# IN SHAPING STEEL or BUYING OPINION

## Powerful Impressions Are Needed

THE shaping of steel requires the application of a powerful, well-directed force. Likewise, the shaping of buying opinion requires a powerful selling force, properly directed.

By presenting the story of your products continuously, through the publications that railway men recognize and accept, you can shape opinions and preferences into widespread recognition and lasting acceptance.

With traffic requirements rising steadily, it is particularly important to point out to railway men what your products can do for them.

The *Railway Age* is edited for and read by railway executives, operating officers, purchasing agents and department heads . . . men whose knowledge of your products is important to you. These men are interested in having information readily available that will enable them to evaluate and select equipment and materials intelligently.

Your regular messages in the advertising pages of the *Railway Age* will enable railway men to keep in close touch with the advantages your products offer, thereby establishing valuable contacts that will aid directly in promoting increased sales of your products.

A Message  
to Manufacturers

# Railway Age

Founded in 1856



*Taken  
for Granted...*

AND RIGHTLY SO...

When you use vehicles equipped with Timken Axles, you'll find yourself taking it for granted that those axles will deliver "tops" in sturdy usefulness and efficient performance, "bottoms" in low costs of operation and maintenance.

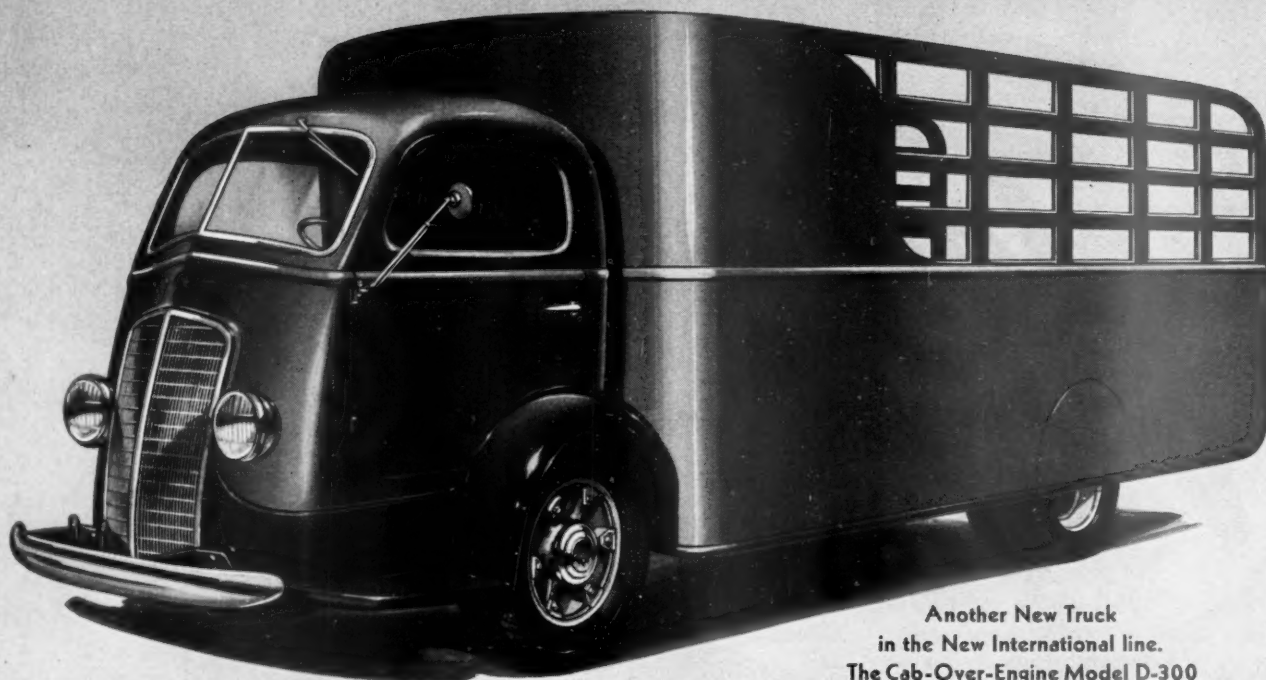
And you're right—they will.

THE TIMKEN-DETROIT AXLE CO., Detroit, Mich.

WISCONSIN AXLE DIVISION, Oshkosh, Wisc.



# THE *New* CAB-OVER-ENGINE INTERNATIONALS



Another New Truck  
in the New International line.  
The Cab-Over-Engine Model D-300

● As in the other models in the New International line, this new Cab-Over-Engine International is new in construction as well as in design. It offers a new standard in performance as well as in appearance.

This new Cab-Over-Engine International is by no means just a converted conventional truck. While we call it "cab-over-engine" it is more than that; the engine is *under the seat*, which means still more practical design. There is a maximum of extra-load space, with perfected load distribution on front and rear axles and all four wheels. There is greater operating economy. The engine is completely accessible. The new cab provides perfect ventilation, greater comfort for the driver, and increased visibility. New steering construction and the shorter wheelbase provide greatest handling ease, and new hydraulic brakes provide maximum braking efficiency.

Here is the ideal low-price truck in the 1½-ton field for today's crowded traffic. A new truck from the ground up. *All-truck* like every other International.

**INTERNATIONAL HARVESTER COMPANY**

Harvester Building

(INCORPORATED)

Chicago, Illinois

**ALL OVER THE UNITED STATES  
DEMONSTRATION  
TIME!**

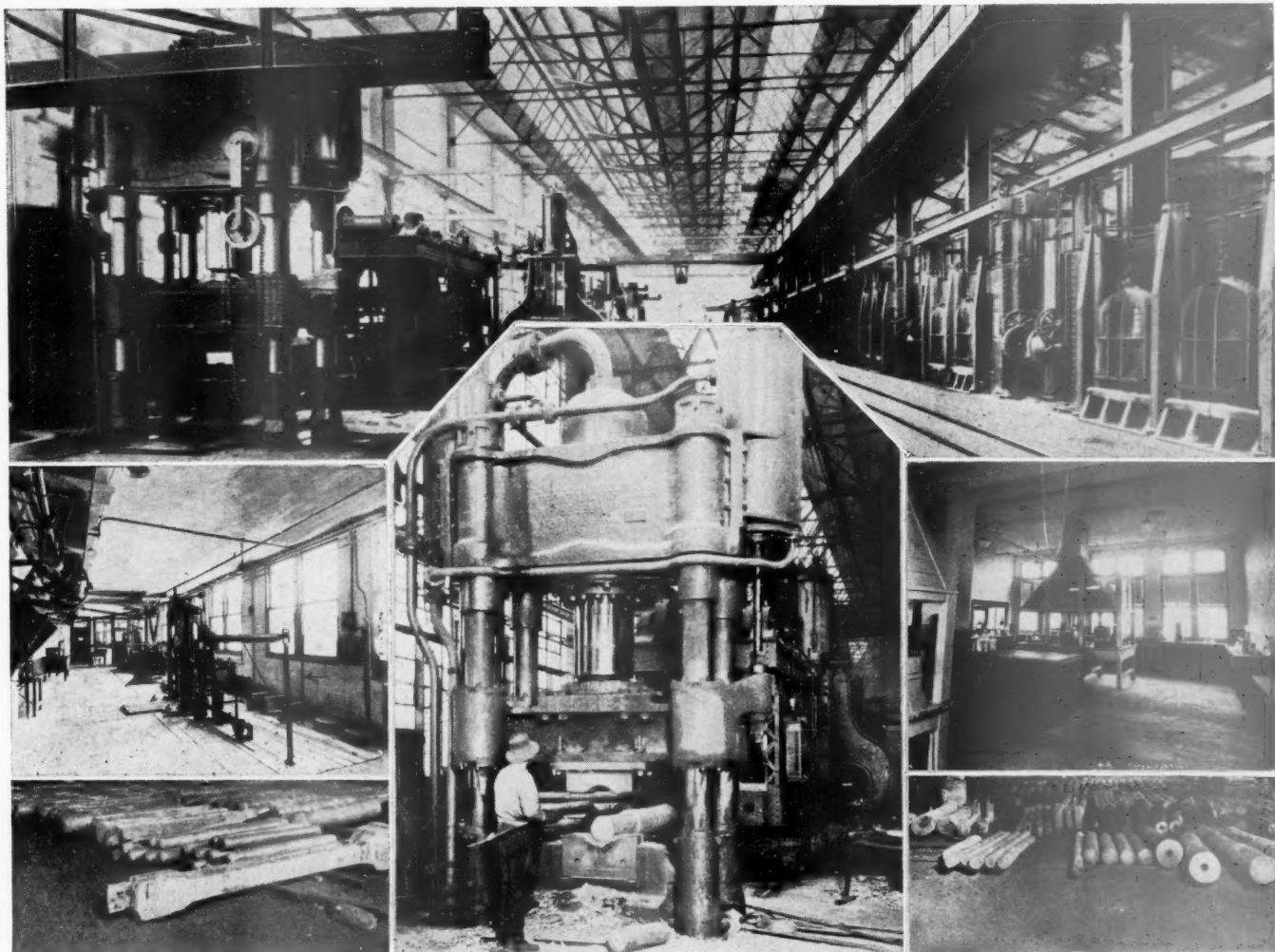
**For the New International  
Cab-Over-Engine Truck**

Ride and drive the new International Model D-300 in congested traffic. Prove to yourself that this International is far ahead of the entire cab-over-engine truck field. It's really *seat-over-engine*, and that's better yet.

Call the nearest Company-owned branch or International dealer for a demonstration. No obligation!

# INTERNATIONAL TRUCKS

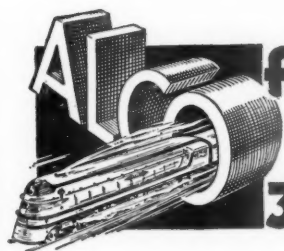
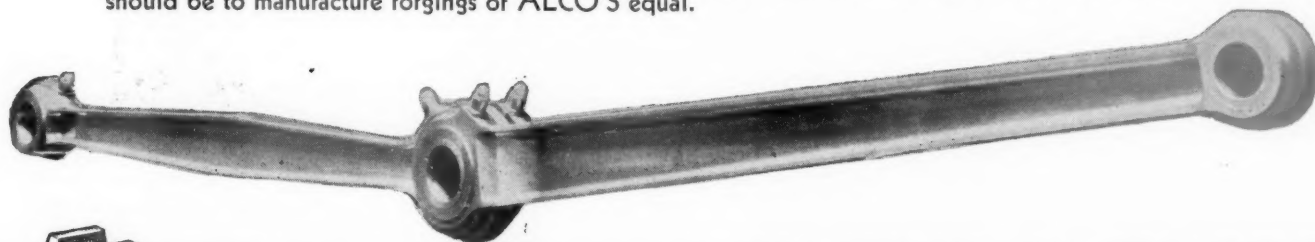




## You Can't Take Short Cuts to QUALITY FORGINGS

**H**IGHER speeds are here to stay. The higher stresses demand the finest locomotive forgings money can buy. To meet these exacting requirements ALCO has equipped a forge shop from end to end with the most modern facilities known to modern science. Many refinements in manufacture have added to achieve the acme of perfection.

There are high powered forging presses and hammers, pre-heating and heat-treating furnaces, pyrometers to be sure, special finishing machinery and in addition there is complete physical, chemical, microscopical testing equipment to provide the closest control over ALCO'S high quality. You need all this equipment for there are no short cuts to highest quality. That is why we say it is much cheaper for a railroad to buy ALCO Quality Forgings than to equip, maintain, and operate a forge shop as it should be to manufacture forgings of ALCO'S equal.



**AMERICAN LOCOMOTIVE COMPANY**

**30 CHURCH STREET · NEW YORK · N.Y.**



# WESTINGHOUSE

Type  
**Y**

## AIR COMPRESSORS

*For* ... **Garage and  
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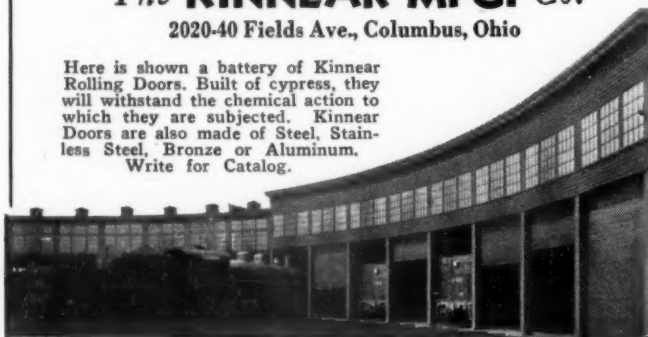
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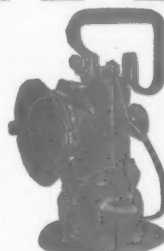
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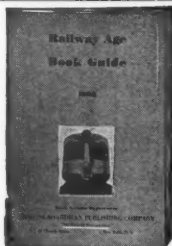
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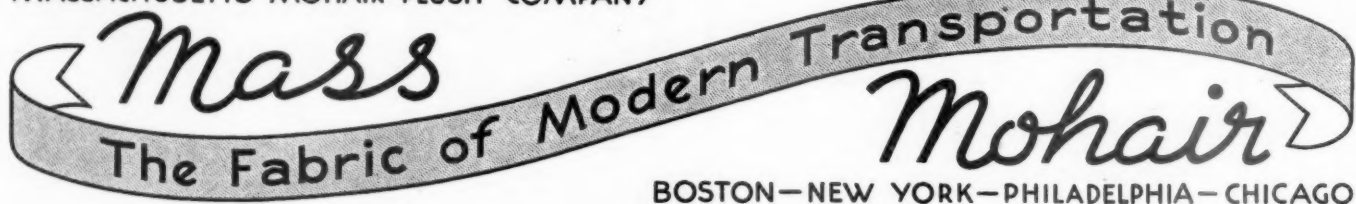
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## RYERSON STEEL SERVICE

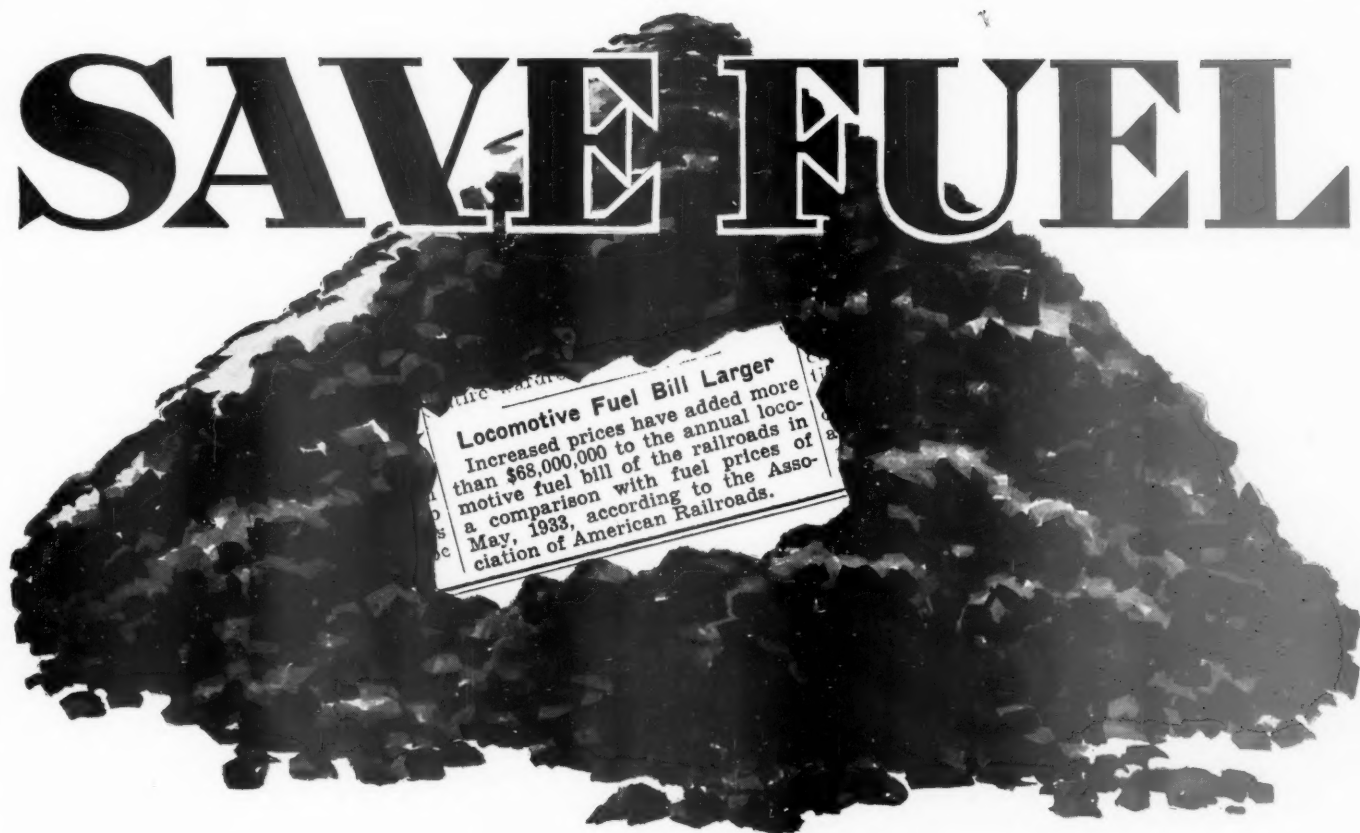
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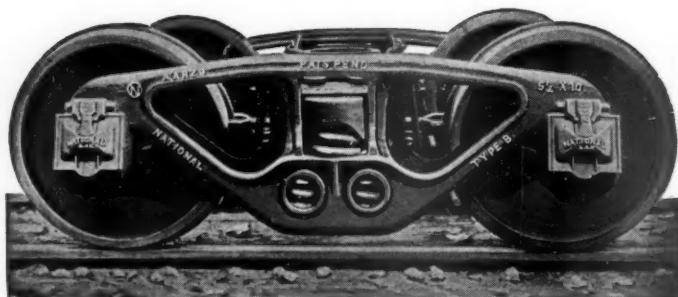
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